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CD-i: Dead or Alive?

Games on the Go

36 Ways to Love Your Laptop

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An IDG Communications Publication

April 1994

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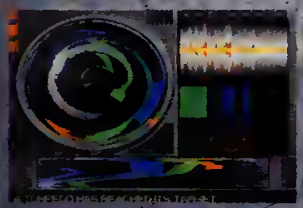
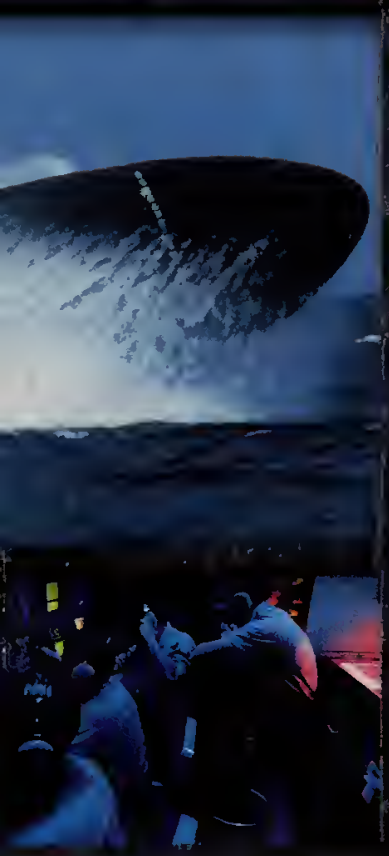


in on their targets. The menacing drone of a destroyer passing overhead.



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keep your eyes open, too. SSN-21 SeaWolf™ features color motion video, 3-D underwater mapping, and vivid digitized images of more than 50 real-world ships and aircraft.

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L LOOKS LIKE. BUT WE'LL D IDEA HOW IT SOUNDS.

Sure, it'll test your nerves. But what were you expecting, the Love Boat?

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COVER ILLUSTRATION BY JOHN LUND, SCREEN IMAGE BY GREGORY MACNICOL

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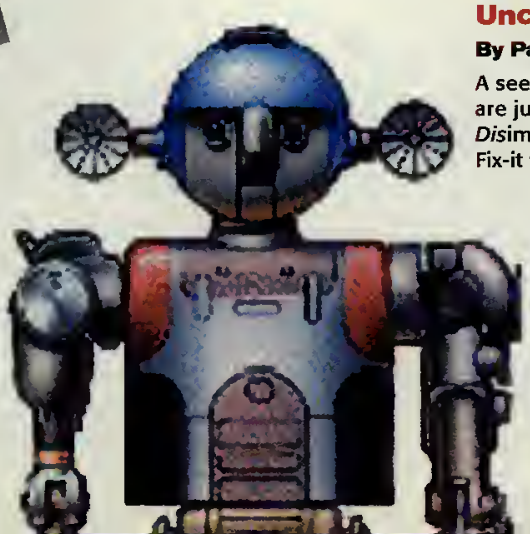

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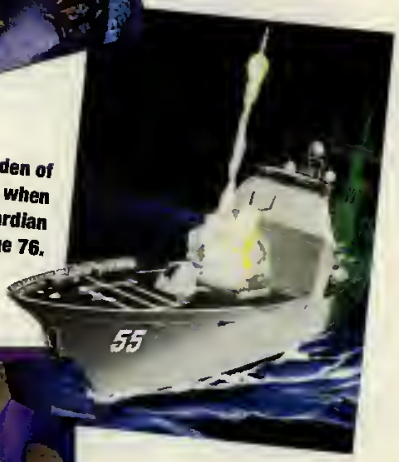

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Tech Shop

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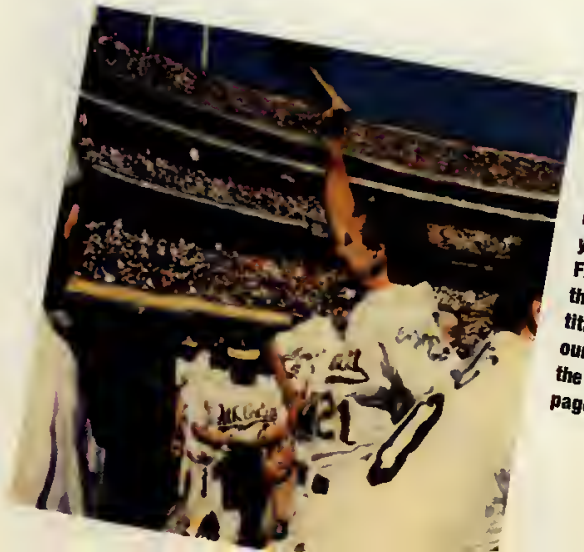
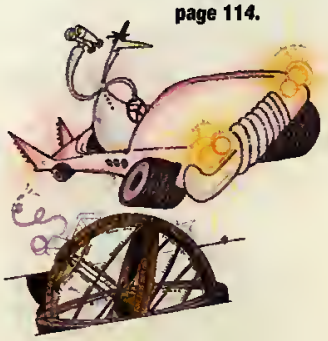


It's the time of the year to play ball! Find out about 20 of the hottest baseball titles, and check out our predictions for the 1994 season, page 46.

Take a smooth ride on the Internet, page 114.



Editor's Page

Gina Smith

Multimedia Made Easy

Remember when buying a PC was easy—or at least easier? You just read the box of your business application, determined whether it needed a PC/XT, AT, or 386, checked the memory requirements, and then bought the PC with the best price. It was as simple as that.

Not anymore. With today's souped-up multimedia titles, entertainment software, and games, you need more than a boring old box. You also need to consider sound quality, CD-ROM speed, storage for plenty of space-hungry games, and great graphics for better game play. Unfortunately, there are thousands of choices available, each with its own combination of components. There's no easy way to find the best system for your titles *and* your checkbook. So *E2*'s technical editor Christopher Lindquist does the dirty work for you in "Multimedia for the Masses" on page 106.

After weeks of testing dozens of reasonably priced multimedia systems—using real multimedia titles and games, not just mumbo-jumbo benchmarks—he came up with ten fully loaded systems that will happily run today's best titles. None of these systems costs a nickel over $2,600, so they deliver the ultimate bang for the buck. We promise.

And speaking of bang for the buck, if you haven't checked out the Philips's CD-i system recently, it's time for another look. When it came out two years ago, the set-top box cost almost $1,000 and most of the available titles for it were complete yawners. But over the last few months, Philips has made some moves toward revamping CD-i—you can now pick one up for well under $500, and with its optional Digital Video cartridge, you can use it to watch full-screen, full-motion video movies and music videos. Plus, developers have been releasing some innovative titles. We round up the best in "CD-i: Dead or Alive?" on page 61.

April is time for opening day, and if you're ready to play, don't miss contributing editor Don Steinberg's rankings of the top 20 electronic baseball games and other products. We even put three baseball products to the ultimate test, challenging them to use their built-in stats and proprietary algorithms to predict the results of the 1994 season. It's all in "Batter Up," on page 46.

Also in this issue, look for the Multimaniac's adventures in using software to repair his house, the ultimate guide to gearing up your laptop for on-the-road entertainment, an interactive TV update, full-blown reviews of 17 hot new games, tons of multimedia news and reviews, and much, much more.

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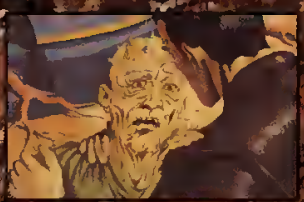
Paranoid population.
Psychotic criminals.
Power hungry corporations.
Big Brother government.
Haves and have nots.

America?

Close.

BENEATH A STEEL SKY™

In a city only *The Watchmen's* Dave Gibbons could create.
In a future only Virtual Theatre could make real.
In a world only you can save.



Available on
PC CD-ROM

Developed by

Virgin

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E2 Mail

Lust for Gadgets

Rarely have I spent so much time with a single issue of a computer magazine. The conversational style, wit, and crispness show a degree of concern for the readership that is indeed refreshing. Kudos to Paul Bonner for his thoroughly entertaining article, "How I Made My Computer Croon" (January, page 86). It's great to know I am not alone in my gadget lust. Perhaps a new type of psychosis has been uncovered—*techno cravitis.*

Carol A Vincent
Orlando, Florida

It's great to read a magazine written by gamers. Ben Calica's "Sweaty Palms" (January, page 42) was a great piece of information about where the market stands today. And I want to tell Nolan Bushnell: You are the creator of it all, the pioneer, the god of com . . . well, maybe not. But you are the one who got me hooked. Thank you.

Roger Isby
Hollywood, California

Finally—a nonbiased source for the lowdown on software and cool tech toys. And you guys aren't as snooty as the competition. The others charge a premium for their magazines (one is actually breaking the $5.00 price barrier) . . . and what do I get? Ads and biased opinions. I used to have to take it, but now I have a choice.

Frisco McDonald
Pine Bluff, Arkansas

Proud to Be a Techie

S.O.S. (January, page 134) was music to our ears. Being computer technicians we dream about telling off people with stupid questions like the S.O.S. guy did. That whole section made us proud to be techies. So our question is: What happened in February? Don't tell me you wimped out just because a couple people got their undies in a bunch. As long as people get their questions answered, they shouldn't have any complaints. Make us proud.

W'Dffice Tech Boys
Columbus, Ohio

Our S.O.S. guru was afflicted with a severe case of holiday spirit when he wrote the February section. We are happy to report that he is back to his cantankerous old self and is no longer wandering the halls spouting goodwill. We apologize for any inconvenience his illness might have caused. —*Ed.*

Thoroughly Annoyed

How dare you mislead your reading public in your game review on Aces over Europe (January, page 104)? You described what Dynamix is trying to achieve as "authentic instrumentation." The actual Spitfire instrument panel doesn't even look close to the Aces representation.

Don Brown
Denver, Colorado

I was irritated by Nolan Bushnell's article ("King Pong," January, page 140). How do you think experts got up to their level? They learned. I am an experienced player and I worked hard to get to the level that I'm at. Bushnell expects it to be as easy as one-two-three. Either that, or he's just mad that his game isn't on top anymore. If everything were the way he wanted it, then being an expert would be no work at all.

Megan Ginter
Wexford, Pennsylvania

Missing in Action

I recently picked up your magazine and was quite distraught at what I saw. Although the journalism is fine and the layout is quite pleasing, it failed to address one of the biggest entertainment bases in existence: Amiga computer. The Amiga plays a major role in many different areas of technological entertainment.

I was especially disappointed at your coverage of MPEG. Not once was the Amiga CD^{32} box mentioned. I understand that the availability of this game machine is limited; but other magazines have published numerous articles on Amiga CD^{32}.

I know that you can't run over to Babbages and get an Amiga game. But although the Amiga market is specialized, its presence shouldn't be overlooked by magazines such as yours.

Shane R Monroe
Summerville, South Carolina

Although your first issue was very informative, I was rather appalled at the blatant lack of any Atari Jaguar coverage. How could a magazine make such a tragic error at such a crucial point in the rapidly unfolding history of electronic entertainment?

With all the noise being made about the "next generation" of video game machines, how could you overlook an obviously superior piece of hardware to the 3DO? The Jag is over 13 times faster than the 3DO at real-time graphics rendering, and has a bus-transfer rate exceeding twice the 3DO's capabilities. And even as I write this, more and more big-name third-party developers are beating down the doors at Atari to secure licenses for the big cat.

The power of the current generation of arcade machines is now in the hands of the public at an unbelievable price. Step up!

Jon G
Wichita, Kansas

Look for full reviews of both CD^{32} and Jaguar CD systems and software in future issues of E2. —*Ed.*

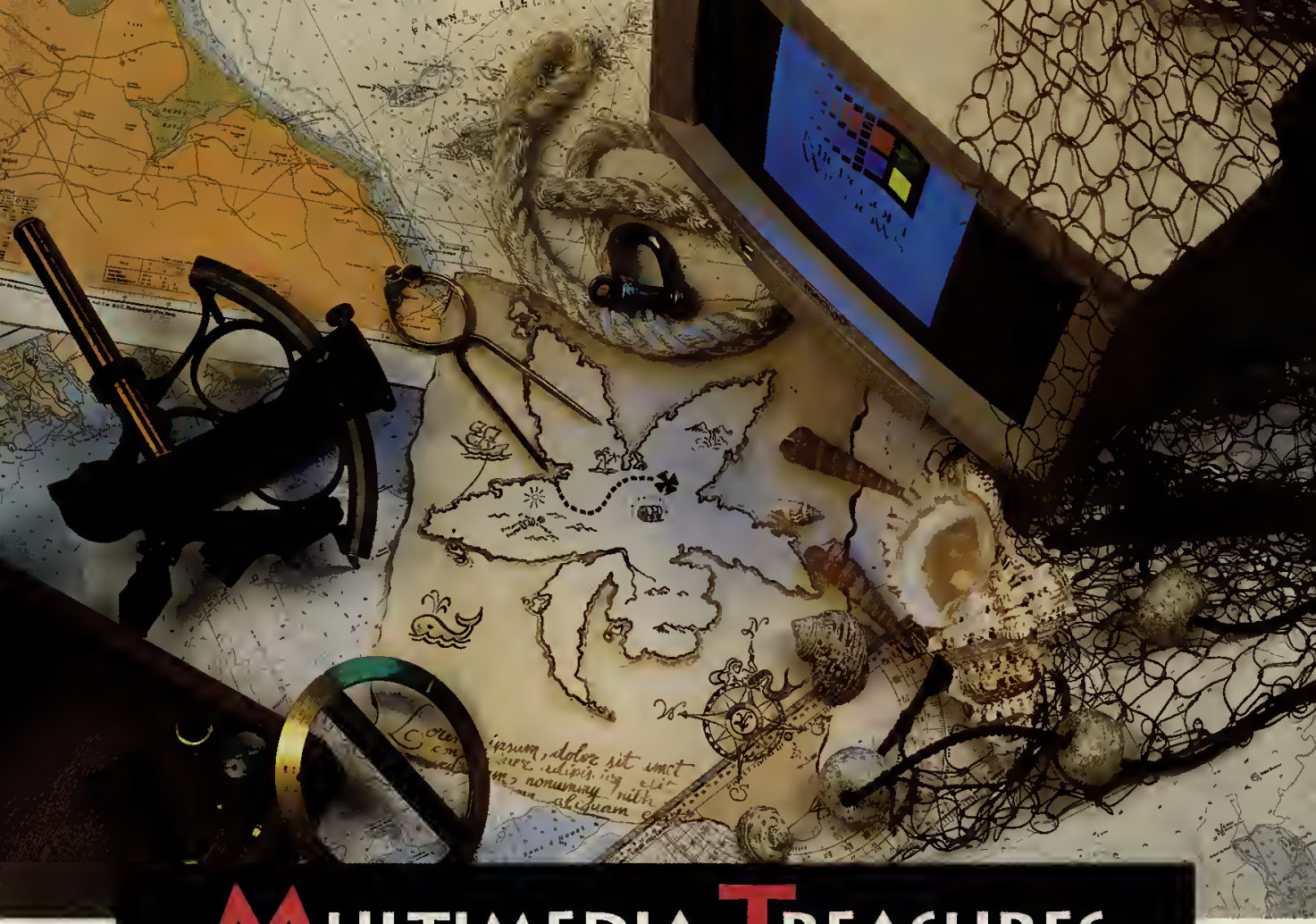
More ITV Guidance

I saw the article about interactive TV ("Brave New TV," January, page 52). How can I get more information about it?

Mike Waters
Lykens, Pennsylvania

Stay tuned, Mike. As interactive TV service emerges from the vapor, we'll be covering the latest ITV news and views. This month, check out page 10 in Sharp Edge for the latest on the Sega Channel and other news about ITV. —*Ed.*

Got something you want to get off your chest? Do it! Write, fax, or e-mail us at: Letters to the Editor, c/o Electronic Entertainment, *951 Mariner's Island Blvd., Suite 700, San Mateo, CA 94404; fax: 415-349-7781; MCI ID: 619-7340; and CompuServe: 73361, 265.*



MULTIMEDIA TREASURES

DISCOVER THE EXCITING WORLD OF MULTIMEDIA WITH ORCHID TECHNOLOGY. With Orchid's multimedia treasures you can explore the new areas of PC sound and CD-ROM technologies. Forget outdated products and sound cards that resemble relics from past civilizations. Orchid's new sound cards and multimedia products bring fresh, exciting audio performance and compatibility to your PC.

SOUND CARDS If you are searching for that perfect sound card, look no further than Orchid. Choose either the critically acclaimed **SoundWave 32** (now available with SCSI CD-ROM interface) or the **GameWave 32**. Both are based on state-of-the art DSP (digital signal processing) technology and feature wavetable synthesis (for real musical instruments). You'll also get compatibility with all major multimedia standards, including SoundBlaster, Windows Sound System, Business Audio, Roland MT-32 (great for game players) and General MIDI (for the musically inspired). Or pick up the budget-priced **SoundDrive EZ** card.

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MULTIMEDIA KITS For the all-in-one solution, discover Orchid's **SoundWave/CD Multimedia** kits. These bountiful and practical solutions are fully MPC Level II compatible and include great hardware and software bundles. There is no easier way to upgrade your current PC to great sound and multimedia capabilities.

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Lonely feline with limited range ks mildcat companion who's content to play the aeme few familiar gamee.

SINGLE, VERSATILE, ATTRACTIVE ENTERTAINER SEEKS PASSIONATE GAME PLAYER FOR NON-STOP ACTION.

Concerned perent of two Italian brothers seeks old-fashioned partners for her plumber sons before their cereers go into the toilet. No newfangled CD tec ogy, please.

3M 2 unbodied sences may

A

Introducing the Genesis CDX™.

SEGA™

Now that we're acquainted, want to have a little fun? I know how to have lots of it. As in three times the fun because I'm three players in one. Did I mention... 1 I play Genesis games. 2 I also play the hottest Sega CD games. In fact, I can play the entire Sega Genesis and Sega CD library — which ought to be the most fun you've had in any library. 3 I'm also a portable CD player, so you and I can make beautiful music together. And since I'm so wonderfully compact, we can go almost anywhere. So what do you say? Genesis CDX is ready to play around when you are.

INCLUDES 3 CDs — SONIC CD™, ECCO THE DOLPHIN™ AND THE SEGA CLASSICS™ ARCAOE COLLECTION

GENESIS cdx™

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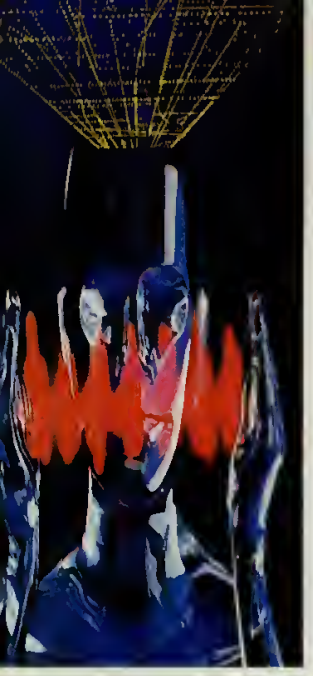
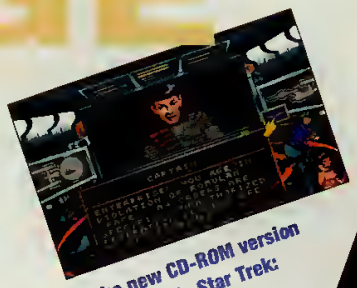




In the new CD-ROM version of interplay's Star Trek: 25th Anniversary, Leonard Nimoy

Sisko and Odo are just two of the characters tracking the killer in Paramount's Deep Space 9, The Hunt.

Star Trek: The Interminable Generations

The Star Trek universe is getting more crowded all the time. At least three titlemakers are working on Star Trek–related products, creating an array of options that will overwhelm even the dedicated trekker.

Paramount, producer of the TV shows and movies, is working on three Star Trek projects. One, **The Star Trek Interactive Technical Manual: Enterprise NCC-1701-D,** uses real sets and props from "The Next Generation" show. You'll zoom through photo-quality starship interiors and get full access to the ship's controls and consoles. And gamers should like Paramount's **Star Trek: Deep Space Nine: The Hunt** this fall. Playing a Federation officer, Bajorian, Klingon, Cardassian, or Ferengi, you solve a space-station murder.

Finally, there's Paramount's **Star Fleet Academy,** due in spring 1995. Designed to be the registration disc that StarFleet students receive upon acceptance to the Academy, it'll include maps, a course catalog, even extracurricular activities. Interplay Productions, meanwhile, is preparing its own Academy game for release late this year. **Star Trek: Star Fleet Academy, The Starship Bridge Simulator** casts you as a third-year student. Under Captain Kirk, you'll test your skills on missions, like the supposedly unwinnable Kobayashi-Maru Scenario. Interplay is also enhancing its **Star Trek: 25th Anniversary** role-playing game with a CD-ROM version narrated by the original Enterprise crew. Kirk's dramatic pauses and Spock's measured tones make a big difference in realism and excitement.

The 300 version of "The Next Generation" from Spectrum HoloByte lets you control virtual actors on the planet Pallarius.

Spectrum HoloByte joins the party with "Star Trek: The Next Generation" games for PC CD-ROM, 3DO, and even Super Nintendo. The 3DO version, **A World for All Seasons,** will resemble an episode of the TV show with arcade and adventure gaming elements. The PC game, **A Final Unity,** will be more like a traditional computer game, where you attempt to save the galaxy. You run the ship and fight large-scale space battles. Both are scheduled to ship this spring.

—Fredric Paul

The Sega Channel Dozen

In March and April, cable customers in 12 American cities will get the country's first taste of the Sega Channel–Sega, TCI, and Time Warner Cable's new service to let cable customers try out Sega games before they buy them. More than 325,000 people will participate in the cable test, which requires a specially designed cable box and a Sega Genesis system. Lucky participants will be able to sample 50 different games each month, preview upcoming titles, and view game tips, game news, and promotional offers. *–Gina Smith*

The First Sega Channel Cities

Hoover, AL • Sunnyvale, CA • East Lansing, MI • St. Louis, MO • Gastonia, NC • Nashua, NH • Buffalo, NY • Cincinnati, OH • Portland, OR • Beaumont, TX • Reston, VA • Charleston, WV

Sonic Hits the Road

If they can make a TV set small enough to fit in your shirt pocket, why can't they do the same for a set-top box? Stop wondering: Sega's done it.

The $399 CDX packs a Sega Genesis console, a Sega CD player, and an audio CD player into a 1.5-pound package not much bigger than a Sony Discman. Cart it easily from place to place and even listen to your CDs in the car on the way. Move it from the living room to the bedroom with one hand. Hide it in your briefcase and play Ground Zero Texas in the conference room on your lunch break. The possibilities are limitless.

Like its beefier cousin, the CDX is compatible with all Genesis cartridges and Sega CD titles, including those that use QSound 3D audio. And the system includes three titles: Ecco the Dolphin, Sonic CD, and the Sega Classics Arcade Collection. With the battery adapter, you also can use it to listen to audio CDs. An AC adapter and audio/video cables for use with a TV are also included. With its CD-power and light weight price, does the CDX mean bye, bye Gameboy? We'll see. (Sega of America; 800-872-7342; $399.99) *–Christopher Lindquist*

Sega's CDX not only plays Genesis cartridges and Sega CD discs—it lets you listen to your audio CDs too.

It's a Wolf's Life

See the world through a wolf's eyes in **WOLF: A True-Life Adventure.** Based on and incorporating video footage from Disney's Academy Award winning True-Life Adventures, Wolf lets you start as a cub, grow and learn the wildlife-ropes, find a mate, mark your territory, protect, defend, and feed yourself as only a wolf can. And you need every ounce of your intelligence, strength, and understanding of the environment to survive. Plus, a built-in interactive museum and nature preserve will tell you everything you've ever wanted to know about these misunderstood creatures. (Disney Software; 800-688-1520; DOS, Windows, approximately $60) *–Sarah Tilton*

Dragon Tales

Look out–this dragon is a sleeper. **Dragon Tales** is an ambitious undertaking that will combine the best of first-person role-playing, graphic adventure, action, and war-game strategy.

But the best thing about this upcoming title will undoubtedly be the amount of detail in its stunning, 3-D-rendered world. The CD-ROM version will let you move fluidly through full-screen 3-D rooms and spaces–just like in The 7th Guest. In fact, one main castle room alone will contain over 195 separate images you can react to and interact with.

In a three-part story, Dragon Tales will take you through a difficult journey of discovery and mythic quest that ends with a full-bore battle and involves a lot of dragons and trolls along the way. Just watch out for Mother Death. (The Software Toolworks; 3DO/CD for DOS)

–Rusel DeMaria

Genesis Gets The Edge

Forget beating up on a silicon chip. Show some guts and compete against flesh-and-blood opponents with AT&T's **Edge 16** modem for the Sega Genesis console. Due this fall, the Edge 16 lets players go head-to-head across normal phone lines for multiplayer excitement. Interactivity is pumped up even more because players use a built-in microphone and speaker to talk trash at each other while they're playing. Edge 16 users can meet others via on-line services like The ImagiNation Network and even compete in national tournaments. Look for a 3DO version when AT&T ships its 3DO multiplayer this fall. (AT&T Paradyne; 415-358-6204)

—Christopher Lindquist

Ultima VIII—And Beyond

The Ultima series is one of the longest-running stories in the short history of computer games. And with Pagan, the eighth installment in this ever-growing saga, it just keeps getting better.

Pagan begins where Serpent Isle (Ultima VII, Part 2) ends. The Guardian has taken the Avatar from the Ethereal Void and now drops him onto the world of Pagan. It's a place where, according to Ultima creator Richard Garriott, "the wimpy little Avatar magic you've brought from Britannia," the site of the earlier Ultimas, "is in fact nothing compared to the ritualistic magic of the Guardian and his titanic forces."

The Avatar can get in some tight situations on Pagan.

To fight successfully, the Avatar must learn the ritualistic magic of the Guardian's god-like allies and eventually turn that magic against the Guardian himself. "In many ways, Garriot explains, "you have to become like the Guardian, which will hopefully become extremely distasteful to the Avatar. Gaining that level of power really goes against the grain of what you learned through the whole process of attaining Avatarhood."

Once you begin to play, you'll immediately see that the characters in this Ultima are bigger—approximately three times the size of Ultima VII characters—and more completely rendered and animated. Even better, the Avatar has gained the ability to run, jump, and climb. Sound a little like Prince of Persia? Garriott admits that he got some inspiration from the little prince. "We basically have Prince of Persia, but running in eight directions and capable of doing infinitely more kinds of activities," he says. To gain the required smoothness, the Avatar character uses 1,500 separate animation frames for movement and combat, and the other characters are also richly animated. By contrast, Ultima VII characters had just 32 shapes each.

If Ultima VIII still isn't enough, Origin is already working on Ultima IX, The Ascension, which will include the climactic battle with the Guardian. In this episode, due out in less than a year, the Avatar will transcend mortality to become a titanic force. "That will wrap up the Avatar sagas," Garriott says, "leaving us with a clean slate as to where to go next. There are lots of rumors that the Ultima series will end there, but of course it won't." (Origin Systems; 800-245-4525; DOS, $79.95)

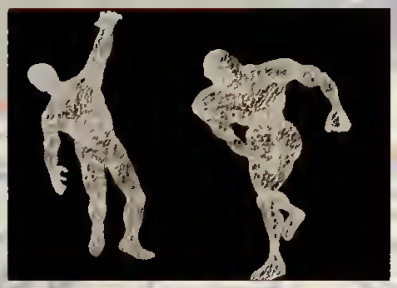
—Rusel DeMaria

The Avatar must undergo a dangerous ritual to gain the power of the Fire Demon.

Motion Capture Comes of Age

In the competitive world of game development, superior technology usually leads to superior products. If Acclaim Entertainment can create games as good as its new **motion-capture system**, it may point the way toward the (polygonal) shape of games to come.

The actors' mock battle is digitally captured ...



... Resulting in wired frame images of the action.

With texture maps and art applied to the wire frames, the battle becomes almost real.

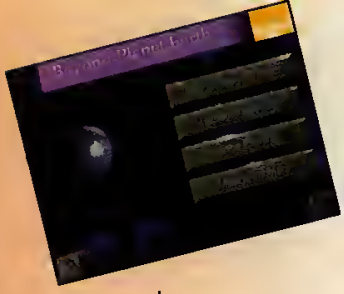
Developers currently capture motion in several ways, with light-reflecting sensors connected by wires to a central computer, or even with sonic or magnetic data-gathering techniques. Acclaim's proprietary process dispenses with wires, allowing full freedom of movement.

The process begins by scanning the actor's image, creating a fully modifiable 3-D wire mesh. In a parallel process, the system records and digitizes the motion data using custom hardware, including special cameras, a fast Silicon Graphics computer, and up to 50 light-reflecting tabs placed in strategic spots on the actor's body. As the actor moves, the system captures what Acclaim describes as "bone rotations," which are stored in a stream of digital data.

With the help of more than 30 man-years of software coding, the Acclaim system lets artists link the motions of the actor's digital skeleton to a single, polygonal mesh "skin," making post-production a breeze. Some systems take up to three months to render just ten seconds of motion capture into usable animation.

The results are terrific. The movements and the texture mapping are so good that it's hard to tell digitally created actors from real ones. Look for the technology to show up first in late '94 or early '95 in The Alien Trilogy, a game based on the *Alien* movies.

—Rusel DeMaria



Out of this World

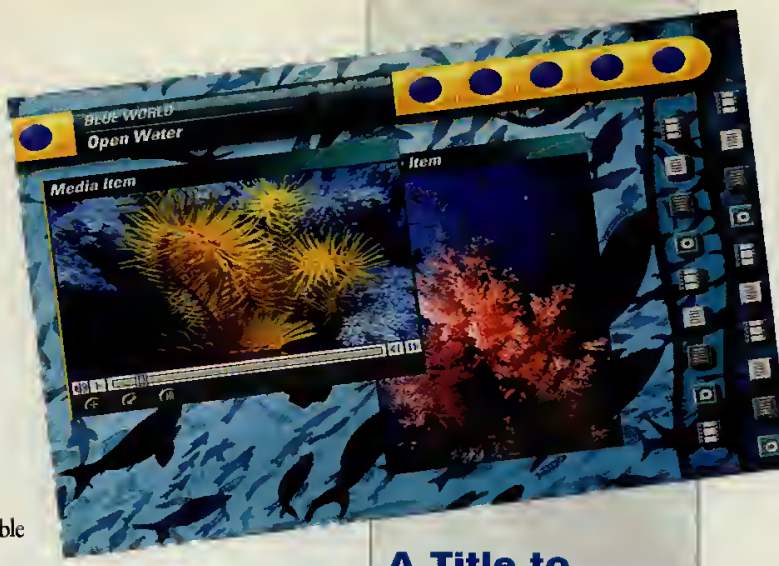
Are we the only intelligent life in the universe? Explore this age-old question with **Beyond Planet Earth,** a new CD-ROM documentery from the Discovery Channel. This title will teach you everything you've wanted to know about our solar system end nearby stere, esteroids, and comets. With beyond Planet Earth you can watch 45 minutes of video clipe—including Discovery'e TV documentary "Tales from Other Worlds"—or flip through 200 astonomical photos or watch in-depth interviews with space experte like astronaut Buzz Aldrin. For thoee of you who are extremely adventurous, you'll can can try your hand at being a NASA scientiet who's plenning a colony on Mers. (Discovery Channel; 301-986-0444; CD for Windows, $49.95)

—Donne Meyerson

Darth Vader Saves Your Screen

Bored with flying toasters? If you're bored ... brace yourself: soon your screen will be the battlefield in the epic space conflict between the Empire's TIE fighters and the Rebel Alliance's X-Wings. LucasArts Entertainment's **Star Wars Screen Saver,** packed on four discs, includes originel movie end sound clips, trivia, spacecraft schematics, end behind-the-scenes looks at artists' conceptual designs. (LucasArts Entertainment; 800-782-7927; Windows/Mac)

–Donna Meyerson



Prodigy TV

What do you get when you cross an online service with cable TV? By next year the answer could be **Prodigy TV**, a new combination service for TV viewers and online-ophiles alike.

Prodigy TV will let you simultaneously watch TV and access key Prodigy online services over your TV cable. While you watch your favorite shows, a small Prodigy icon in the corner of your screen lets you know you're online. A click of your special cable box's remote control, and the TV picture retreats to a resizable window, giving you access to news, sports, and other Prodigy information. You can read messages or track news and sports events according to your preferences—get updates on the NBA while watching the NCAA tournament, for example.

If you're watching a music video, you'll be able to call up the lyrics or liner notes, order the CD, or vote in a poll on which song you like best. Of course, there will also be home shopping and infomercials, and you'll be able to get product information or order right from the TV, without picking up the phone.

Prodigy says its service is ready now, and the company is working with cable box makers Jerrold and Scientific-Atlanta to come up with compatible converters later this year. Prodigy expects to begin testing next year and to use its distributed network to start widespread installation—cable system by cable system—in 1996.

Meanwhile, in San Diego, Prodigy and Cox Cable are already testing a new $500 coaxial modem from Zenith that links your computer to the TV service at more than 50 times the speed of a typical phone-line connection. Similar tests are scheduled for later this year with Viacom and Comcast cable systems. This 500-Kbps connection practically eliminates delays and makes it possible for online services to deliver true multimedia.

—Fredric Paul

Prodigy TV will let you order products, answer sports quizzes, or get more information on music-video artists, all while watching television at the same time.

A Title to Dive For

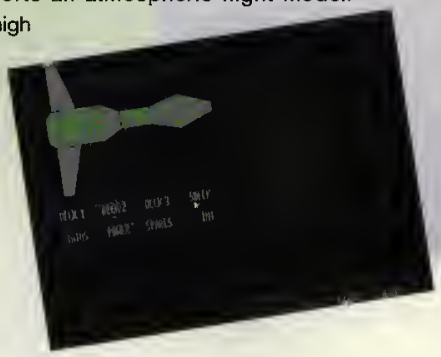
Coral Reef! The Vanishing Undersea World lets you explore a unique ecosystem that pollution and development are threatening to destroy. Using videos, photographs, sound, and illustrations, this CD-ROM puts you up close and personal with the most beautiful spectacles in the ocean. While you explore these reefs and their exotic inhabitants, you'll learn about various creatures, including starfish, parrot fish, sea cucumbers, damsels, and even bizarre spiny blennies. Be ready to dive in early this summer. (Maxis; 510-254-9700; CD for Windows/Mac, $69.95)

–Donna Meyerson

Eat Your Heart Out, NASA

The computer-game industry may be NASA's biggest competitor. The hottest developments in space exploration these days are coming from gaming companies instead of mission control.

While NASA's space station fights for its fiscal life, Mission Studios' **Battlecruiser 3000AD** is flying high. The people at Mission are best known for the popular JetFighter games, so it's no surprise that Battlecruiser 3000AD sports an atmospheric flight model. But this game orbits high above the usual flight sim, offering a mission of galactic importance.



As a member of GALCOM, you must fight off an alien threat using a combination of trade, diplomacy, and of course, your battlecruiser's firepower. You'll navigate 3-D space, fly interceptor craft onto planets, even meet and negotiate with twelve different alien races—some friendly, some less so.

Battlecruiser 3000AD features state-of-the-art 3-D scenes and ships. When it ships this spring, it should provide plenty of fun and challenge for fans of space exploration as well as flight-sim pilots. (Interplay Productions; 708-991-0598; CD for DOS, $69.95)

—Rusel DeMaria

CD^{32} Hits the States

So what if **Commodore's Amiga CD^{32}** system is wowing them in Europe and sailing off the shelves in Canada? It'll face a major battle in the United States, where store shelves are already sagging under the weight of Sega CD, 3DO, Philips CD-i, and Atari Jaguar hardware.

Still, the CD^{32} definitely has some aces to play. At $399, it bests 3DO's retail price by nearly $300. And while its technology may not be as cutting-edge as the 3DO's or Jaguar's, it certainly beats Sega's and Philips's aging 16-bit technologies in speed and graphics. CD^{32} has something else in its favor, too—more titles.

In addition to CD^{32}-specific titles—and there are more than 100 available—the box will also run most CDTV and Amiga titles when it begins shipping this month. Better still, a $250 optional MPEG-1 cartridge for viewing full-motion video will also be available for the system. Look for a full-blown CD^{32} review in the next issue of *E2*. (Commodore; 215-431-9100; $399)

—*Christopher Lindquist*

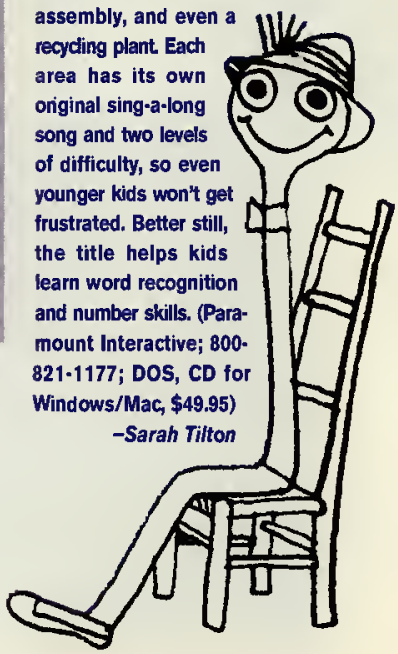
CD^{32} is due to hit store shelves this month.

How Things Work

To a kid, the world is a complicated place. Richard Scarry's How Things Work, a follow-up to his award-winning Busy Town, help kids to make sense out of the common activities they see around them.

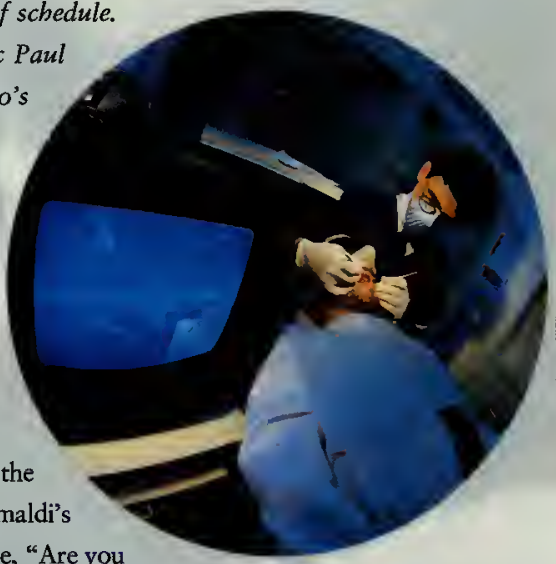
How Things Work expands on the Busy Town interface so that children ages 3 to 6 can explore eight interconnected "playgrounds," including a farm, a mill, a toy factory, a bakery, heavy-equipment assembly, and even a recycling plant. Each area has its own original sing-a-long song and two levels of difficulty, so even younger kids won't get frustrated. Better still, the title helps kids learn word recognition and number skills. (Paramount Interactive; 800-821-1177; DOS, CD for Windows/Mac, $49.95)

–Sarah Tilton



The Return of Dr. Feelgood

Nobody likes going to the dentist. The noise of the drill alone is enough to send shivers up your spine. But thanks to a new virtual-reality dental system from a small firm called Virtual Vision, dentistry is hitting the 21st century a little ahead of schedule. To give you an idea of what's in store, E2 *features editor Fredric Paul opened wide for Dr. Frank Grimaldi, a San Francisco dentist who's using a modified version of the system.*



PHOTOGRAPH BY RICHARD MORGENSTEIN

An out-of-mouth experience: Painless dentist visits can be yours if you wear the Virtual Vision VR headset.

The experience begins when the doctor slips the modified **Virtual Vision VR headset** over my face. At first it feels a little unpleasant, dark and somewhat confining. But as I lie back inhaling the nitrous oxide, listening to the music in the headphones, and watching computerized animation, I start to realize I've never really felt this good in a dentist's office before.

I vaguely notice as Dr. Grimaldi begins work on my mouth, but the drills and probes seem a thousand miles away. Occasionally, Dr. Grimaldi's video image appears in a window in the corner of the screen to inquire, "Are you all right in there?" And when he finishes his ministrations and tells me, "I'm going to bring you in for a landing now," it's almost a disappointment.

Grimaldi tells me that Virtual Vision is selling the system to dentists throughout the country—although they generally don't feature the animation (instead, they use broadcast TV and nitrous oxide). But I have to say I prefer Grimaldi's method.

Most people think of virtual reality as a way to go somewhere they can't visit otherwise. But as Grimaldi's version of Virtual Vision system proves, it can just as easily spirit you away from somewhere you don't want to be. *–Fredric Paul*

Control Tower

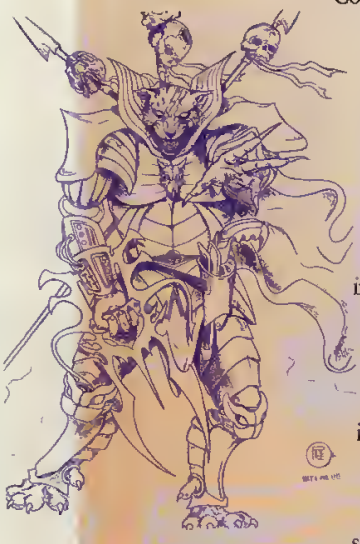
If you think trying to keep 747-flying jet-jockeys from turning slow-poke Piper Cubs into runway skid marks sounds like fun, spend a couple hours in Tower, Mallard's control-tower simulation. You just might change your mind. With Tower, you control the air traffic at any of several major airports, including Chicago's O'Hare and Washington National, as you try to keep planes in the air and out of the headlines. Keep everyone in one piece, and get promoted. Cause any air disasters, and get your résumé together. For an even more realistic challenge, hook up Tower to Microsoft's Flight Simulator via modem and help bring your buddy in for a safe landing. (Mallard; 800-932-3338; Windows, $69.95) *–Christopher Lindquist*

A Bigger, Better Wing Commander

The glory of WC3 starts with this simple concept sketch.

LucasArts' TIE Fighter maybe the hot product right now, but looking down the line there's another great space adventure coming from Origin—**Wing Commander 3.**

Due late this year, Wing Commander 3 will feature Super VGA space battles and high-resolution 3-D scenes throughout, lifting the popular title to an even higher level of game play. Game designer Chris Roberts has taken the knowledge that he acquired building Strike Commander to create a brand-new "flight engine" to power Wing 3. With this engine in place, Roberts says, "We're basically doing the game instead of inventing the technology."



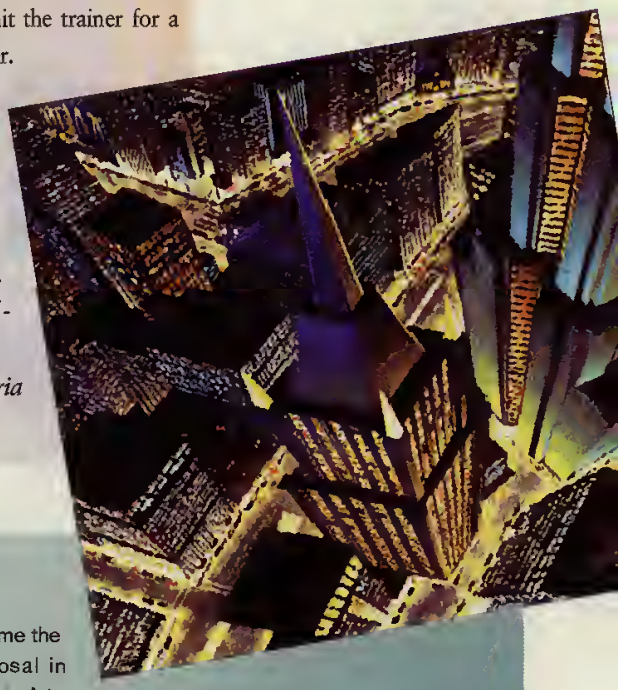
Cat Scratch Fever: This catlike alien will haunt you in WC3.

Other Wing 3 innovations will include big-name Hollywood actors and more non-space scenes. For instance, you'll be able to interact with other pilots. If someone screws up, you can be sympathetic, or you can chew 'em out. But remember, your response could affect how they perform in combat. You don't want your wingmen to abandon you with Kilrathi closing in from all sides, do you?

As before, there will be a training simulation, but this time it may include a random mission generator, so you can just hit the trainer for a quick hit of Wing Commander.

All the improvements will make Wing Commander 3 a big game in more ways than one. It will require at least 8MB of RAM and a double-speed CD drive. (Origin Systems; 800-245-4525; CD for DOS)

—Rusel DeMaria



Heroism's Dark Side

What if a comic book demanded that you become the hero? Are you up to it? This is the proposal in **Noctropolis,** a dark fantasy game from Electronic Arts.

As a devoted follower of the Darksheer comic book series, you're devastated upon discovering that it's about to be discontinued. But when a strange "limited edition" issue arrives, you're dragged into a mysterious comic-book universe where Darksheer has retired and you've been selected to carry on his work. Your job is to prevent a gang of insidious villains from crossing over into the "real" world – your world.

Hand-painted backdrops highlighted with more than 60 minutes of video help bring the world of Darksheer to life in this game for grown-up players looking for a more mature, sophisticated challenge. (Electronic Arts; 800-245-4525; CD for DOS/DOS, $59.95) *–Christopher Lindquist*

ITV Update

Apple and **IBM** are joining the ITV party.

Apple is working on set-top boxes based on the Mac, which will be tested later this year with new technology from **Oracle,** the big computer database vendor. The key to the Oracle technology is the Oracle Media Server, a giant multimedia jukebox that is designed to store and deliver programming to a variety of set-top boxes over several different types of connections.

To test the technology, Oracle and Bell Atlantic are planning a relatively simple interactive TV and home-shopping service for 250,000 homes in the Washington area. The trial should begin this year and will expand —if all goes well—to 1.2 million customers by the end of 1998.

Along with Apple in the set-top box trials are IBM, North American Philips, and a group of smaller vendors including Divicom, Adaptive Microwave, and Eurodec. Independent developers like Compression Labs, General Magic, Kaleida Labs, Motorola, Philips Consumer Electronics, and Sega will also support the new platform.

In other ITV news, **Interactive Network** is planning to expand its service offerings from TV shows such as "Jeopardy" and sports to video and computer games. Using the same telephone-based communications system and a patented scoring method, the company plans to let thousands of game players use existing software to compete against each other in real time for fun and prizes.

ICTV, meanwhile, is planning a tiny test of five homes in Milpitas, California, to be expanded to 1,000 customers by the end of the year. IBM-built set-top boxes for the ICTV system will cost no more than $200, and allow subscribers access to video-on-demand, home shopping, computer games, and restaurant and entertainment guides.

Finally, who says the Information Superhighway has to be on solid ground? **RCA, Hughes,** and **Motorola** are working on ways to provide all your information needs via satellite, bypassing the need to string lots of cable.

—Fredric Paul

Real Time for Adventure

Lords of Midnight lets you play in all four seasons.

[illegible] **Lords of Midnight: The Citadel,** [illegible] the competition. Unlike most adventure games, Domark Software's Lords of Midnight will support play in real time, where each game day equals one real day. For even more real time, you can set the game's artificial intelligence engine to run the various characters on their own. That way, when you come back to the game after a week, a week of action has transpired. To help mark the passage of time, Lords of Midnight includes a full calendar, and the 3-D texture-mapped backgrounds change to mark the seasons.

Due late this spring, Lords will let you control up to four fully animated characters as you struggle to rescue Luxor the Moonprince, free12 hostages, and find the powerful Eye of the Moon. Created by Mike Singleton—the man behind Ashes of Empire and Midwinter—The Citadel is the third in a series of Lords of Midnight adventures. (Spectrum HoloByte; 800-695-4263; DOS, CD for DOS, approximately $70)

–Fredric Paul

See Me, Feel Me, Touch Me . . .

For better-looking and more realistic-feeling virtual reality, slip on a set of virtual-reality goggles, and maybe even a vibrating vest that lets you feel the full impact of your favorite software.

The Forte VFX 1 gives the illusion of watching a 35-foot screen from 35 feet away.

Computer owners who want the full virtual reality experience should check out the **Forte VFXI Head Mounted System.** Due this fall for just under $1,000, this headset fills your vision with 3-D images—The effect resembles what you'd see on a 35-foot full-color screen viewed from a distance of 35 feet. Forte is still perfecting the final headset design—it's styled after a futuristic pilot's helmet—and Virtual Orientation System (VOS) head-tracking, motion-detection software. The VFX will also feature holographic stereo sound and individual focus for each eye. To be co-distributed by Forte and joystick maker Advanced Gravis, the VFXI will connect to your computer's video card to work with any VGA game or multimedia title.

Intended for Mature Audiences Only

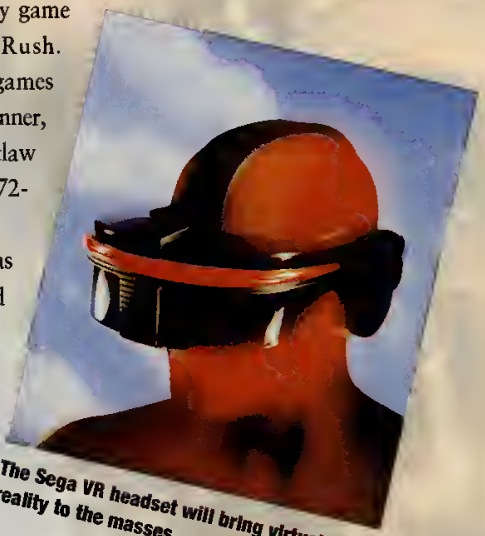
Vibrating vests can do a lot more than make you feel the gun zap from an alien fiend. In fact, they'll probably end up defining the next wave of interactive erotica.

Imagine going to an over-21 arcade center in the back corner of your local bar. You strap into one of these vests and start playing a multimedia title with a name like The Legend of Kama Sutra. The vest vibrates at the appropriate moments—and at the appropriate places—in the erotic game.

David James of Vivid Interactive says he is working on getting these arcades in bars by June. But will this user-friendly garment really give you virtual sex? Oh, come on. It's just a nylon vest. More than likely, all you'll get is a virtual massage. *—Beth Cataldo*

Don the Aura Systems Interactor vest, and you'll feel every thump and bump.

And if you're a Sega Genesis player who's been waiting forever for the long-delayed Sega VR headset, you're only going to have to wait a little bit longer: Sega now says its sub-$250 **Sega VR** headset will ship late this summer or early fall. Intended for the mass market, the full-color unit will include built-in stereo headsets and a virtual-reality game called Nuclear Rush. Other VR-ready games include Matrix Runner, Iron Hammer, and Outlaw Racing. (Sega of America; 800-872-7342; Genesis and Sega CD, less than $250)



The Sega VR headset will bring virtual reality to the masses.

And how about a virtual vest to help you get the feel of things? Aura Systems has come up with a vibrating **Interactor** virtual vest, which uses patented technology adapted from military research. The idea is that it can vibrate in response to any audio input, including computer games, music, and sporting events. Buckle up the lightweight vest, and you can feel the impact of your bombs, the thump of the bass, or the crunch of a football tackle. You can adjust the intensity to match the action, and Aura is working with game designers to encourage the development of special audio tracks that would key the vest only when you get hit, for example. Look for the Interactor in the stores later this year. A version of the technology built into a pillow instead of a vest is also on the drawing board for more inhibited types. (Aura Systems; 310-643-5300; $89.95) *—Fredric Paul*

Leader Board

The best-selling PC, Mac, and CD-ROM entertainment software

Microsoft's perennial flight sim takes off again with Flight Simulator 5.0.

PC GAMES

1 **Microsoft Flight Simulator 5.0** With you in the pilot's seat of your choice of four planes, this game flies in at number one for the third month in a row. (Microsoft; 800-426-9400, DOS, $64.95)

2 **B-Wing** Get even more scenes in the fight against the Empire in this X-Wing expansion (LucasArts Entertainment, 800-782-7927; DOS, $29.95)

3 **Aces Over Europe** The scenario is World War II, the missions are many, and the munitions are ready. Put your life on the line to win the war (Dynamix; 800-757-7701; DOS, $69.95)

4 **Rebel Assault** Intense 3-D visuals and furious action highlight this *Star Wars* fantasy action adventure. (LucasArts Entertainment; 800-782-7927, CD for DOS, $79.95)

5 **Links–Pebble Beech** Now you too can play this dream course with the best of them. (Access; 800-800-4880, DOS, $39.95)

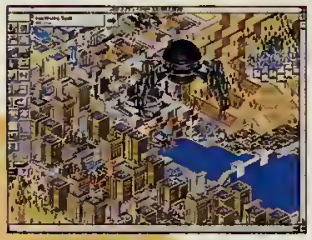
6 **Leisure Suit Larry 6: Shapa Up or Slip Out!** The sixth version in the series lives up to the Laffer reputation. This time, Larry's dream comes true–a vacation at a resort full of women (Sierra On-Line, 800-757-7707; DOS/Windows, $69.95, CD for DOS/Windows, $79.95)

7 **The 7th Guest** The ghost of Henry Stauf just won't go away in this realistic and haunting drama. (Virgin Interactive Entertainment; 800-874-4607; CD for DOS, $99.99)

8 **Privateer** Wing Commander with a decidedly mercenary twist. Shady deals and dangerous missions put this one in the top ten for the third month. (Origin Systems; 800-245-4525; DOS, $79.95)

9 **Front Paga Sports: Football Pro** Real players and stats, weather conditions, team trades, multiple angles, superior graphics, 1,000 stock plays, and bone-crunching tackles–now *that's* football (Dynamix; 800-326-6654; DOS, $79.95)

10 **X-Wing** Still in the top ten, X-Wing is the quintessential *Star Wars* space simulation experience. Fly on the Rebel side against the evil Empire. (LucasArts Entertainment; 800-782-7927; DOS, $69.95)



Watch out for the aggressive space aliens in Sim City 2000.

MAC GAMES

1 **SimCity 2000** Build a city of the future with this improved version of the classic. (Maxis; 800-336-2947; Mac, $69.95)

2 **Chessmaster 3000** Learn the rules of chess and get advice from the masters Karpov and Kasparov. (The Software Toolworks; 800-234-3088; Mac, $49.95)

3 **Myst** Stunning visuals, haunting audio, and logical solutions will keep this compelling and revolutionary game on your play list. (Brøderbund Software; 800-521-6263; CD for Mac, $59.95)

4 **SimCity Classic** Create your own city and set up residential, commercial, and industrial zones, build mass transit, provide police and fire protection, and set taxes. (Maxis; 800-336-2947; Mac, $39.95)

5 **Star Trek: 25th Anniversery** Take the Enterprise out for a spin as you explore the final frontier. This title has been in the top five, three months in a row. (Interplay Productions; 800-969-4263; Mac, $59.95)

Luke Skywalker isn't the only one who can attack the Death Star.

CD-ROM TITLES

1 **Rebel Assault** Intense 3-D visuals and furious action highlight this *Star Wars* fantasy action adventure. (LucasArts Entertainment; 800-782-7927, CD for OOS, $79.95)

2 **The 7th Guest** The ghost of Henry Stauf just won't go away in this realistic and haunting drama. (Virgin Interactive Entertainment; 800-874-4607, CD for DOS, $99.99)

3 **Microsoft Encerte** Learning takes on a whole new meaning with multimedia encyclopedias. Experience history with video footage, audio clips, animations, and text. (Microsoft, 800-426-9400; CD for Windows/Mac, $395)

4 **Iron Helix** It's up to you to save the universe from viral genocide as you manuever an out-of-control spacecraft. (Spectrum HoloByte; 800-695-4263; CD for Mac, $89.95)

5 **King's Quest VI** Travel through an enchanted world of mystery in this royal adventure and love story. (Sierra On-Line; 800-757-7707; CO for OOS/Windows, $79.95)

6 **Return to Zork** The Great Underground Empire gets a new look in this text-free interactive video adventure (Activision/Infocom; 800-477-3650; CD for DOS, $79.95.)

7 **Dracula Unleashed** Go neck to fang with the Great Bloodsucker in this horror tale of corpses and vampire brides (Viacom New Media; 800-245-4525; CD for DOS, $59.95)

8 **ROMaterial** An exciting array of icons, screen savers, full-motion video, and sound effects. (Moon Valley; 800-443-2748; CO for DOS, $29.95)

9 **MPC Wizard** A configuration and testing utility for multimedia computers (Aris Entertainment; 800-245-4525, CD for Windows, $14.95)

10 **Med Dog McCree** Shoot your way through the old West, saving the town, the mayor, and his daughter in a final showdown against the outlaw Mad Dog McCree. (American Laser Games, 800-863-4263; CD for DOS, $59.95)

The Leader Board is a compilation of top-selling software in 1,300 retail stores for November, 1993 Some titles may appear in more than one category. Source: PC Data.

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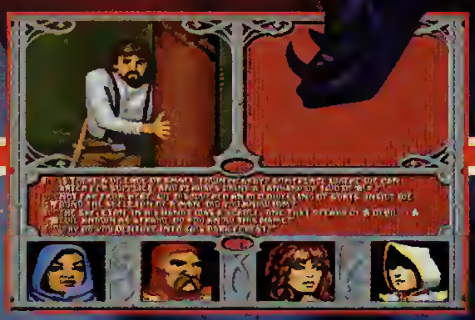

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DON'T LET THIS GUY LIFTING A

He's General Minh, a deranged, power-mad sicko running a maximum security Factory of Doom. She's a chopper pilot turned survivalist named Kat.

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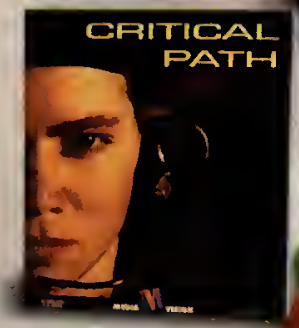

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Spotlight

Sound Wave

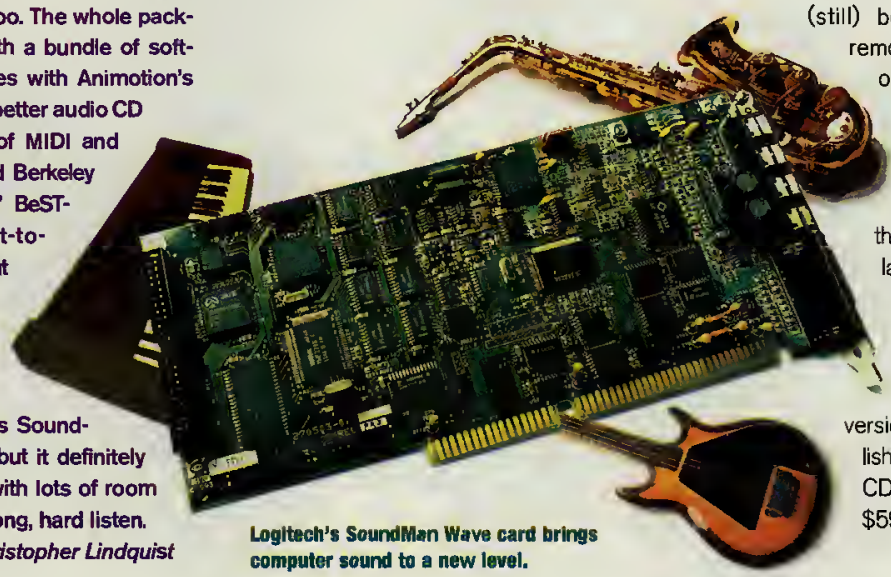
Once you've heard a sound card that uses wave-table technology, you'll never want to go back. That's because wave tables use recordings of real instruments to generate sound, instead of imitating them with FM synthesis.

Logitech is the latest company to jump on the wave-table bandwagon with its SoundMan Wave, a 16-bit sound card that is software configurable—so there are no jumpers to mess with. Even more exciting, it has a Digital Signal Processing (DSP) socket with a daughterboard connector. That means you'll be able to add more functionality (such as full motion video and enhanced 3-D sound) later.

Logitech has designed the card so that the line-out jack bypasses the on-board 6-watt amp and goes directly to your self-amplified speakers, and yes, all the usual audio connectors for connecting joysticks, MIDI instruments, mikes and speakers are there, too. The whole package is topped off with a bundle of software. The card comes with Animotion's MCS Music Rack for better audio CD control and editing of MIDI and WAV sound files; and Berkeley Speech Technologies' BeST-speech ReadOut text-to-speech software that lets your computer read aloud the words that appear on your screen.

At $350, Logitech's SoundMan isn't a bargain, but it definitely delivers solid value with lots of room to expand. Give it a long, hard listen.

—Christopher Lindquist



Logitech's SoundMan Wave card brings computer sound to a new level.

TASTY BUT FLAWED

A Trip to the Wine Country

Learning about wine is only a click away.

The best way to learn about wine is to get an education right at the winery, whether it's in the Napa Valley or the Rhone. And if it weren't for some nagging problems, the next-best way would be an interactive trip with Multicom's **Wines of the World** CD-ROM disc.

Keep track of your favorite wines by creating a personal database that includes professional ratings.

Wines of the World takes neophyte oenephiles on a multimedia tour of the world's top wine-producing regions. By clicking on increasingly detailed maps, you can hone in on a particular wine-growing region. Then you choose from narrated slide shows, vintage films about wineries and wine making, photographs and audio clips, and text on a magnum of wine-related subjects. The disc covers virtually the entire process of wine production, from planting the vines to pouring and tasting the finished elixir.

Clearly designed for novice wine drinkers, sequences include how to match wine to food, how to judge a wine by its color (with photos showing the varying hues that reds and whites take on and what they mean), and how to build a personal wine collection.

Unfortunately, the program uses a haphazardly abridged version of wine ratings from *The Wine Connoisseurs' Companion* newsletter. The Windows version of the title mislabels some video clips, while others are inappropriately silent. For example, clicking on how to open a Champagne bottle calls up a silent clip of a regular (still) bottle's cork being removed with a prong opener. Try that with sparkling wine and you really will be bottoms up.

The selections on the Mac version were labeled correctly, but the program crashed repeatedly. Multicom promises to fix the bugs in their next version. (Multicom Publishing; 800-245-4525; CD For Windows/Mac, $59.95)

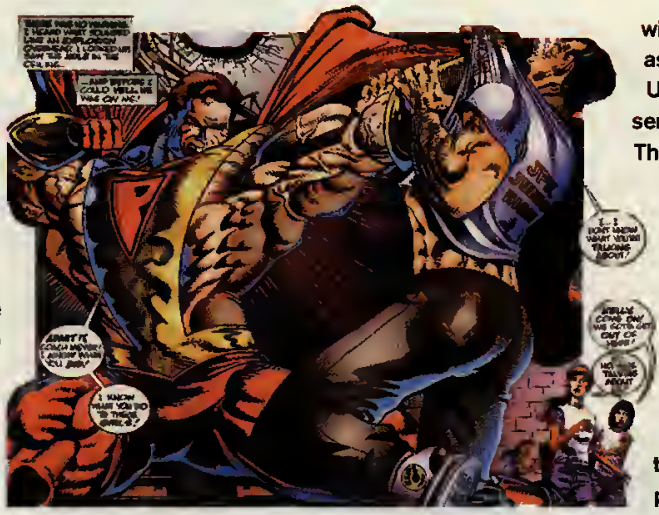
–Michael S. Lasky

PHOTOGRAPH BY DAN CLARK

CD-ROMIX! Is Primed for Action

Multimedia brings Prime's exploits to your PC.

Comics fans rejoice! The marriage of Malibu Comics and Davidson and Associates has resulted in CD-ROMIX!—a new series of discs that give electronic life to art from the original paper releases of **Prime #1**, **Hardcase #1**, and **Freex #1**.



Prime lays into his first villain, the junior-high gym coach.

CD-ROMIX! Prime #1 is one of the first Malibu comics to hit CD-ROM, and it arrives in style, retaining the artistic flavor that you get with paper comic books while adding the sound, motion, and some animation. It's not an interactive experience: All you do is sit back and watch. As an added bonus, though, CD-ROMIX! takes you behind the scenes to interviews with the writers, artists, and editors who bring comics to life.

Much to CD-ROMIX!'s credit, the electronic versions use multimedia only to enhance the original story line, not to replace it. Simply watch as panels scroll by, or control the pace, moving anywhere in the story at any time. Length is a disappointment for CD-ROMIX!, though—each title runs for less than 15 minutes. The fault doesn't lie so much with the discs as with the Ultraverse series itself. The comic books aren't exactly doorstops.

Still, adding the narration and sound effects is enough to give the stories a real cinematic flair without compromising the original comic book art. And you don't have to know anything about setting up your computer for multimedia, since the CD-ROMIX! titles autodetect your sound card and configure themselves accordingly.

Ultraverse readers will definitely be impressed both with what CD-ROMIX! has maintained and what it has added to an already top-flight comic. (CD-ROMIX!; 310-793-0600; CD for DOS, $24.95 each)

–Christopher Lindquist

Pushbutton Joystick Power

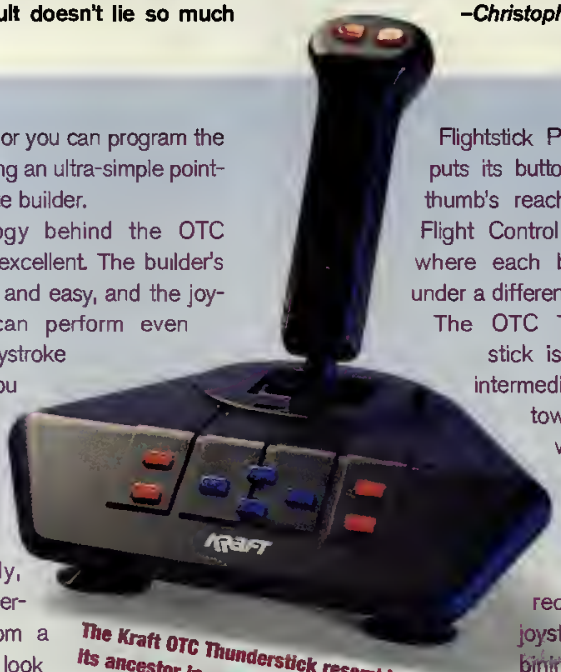
If winning were simply a matter of knowing which buttons to push, Kraft's new multibutton joystick would give you more ways to win.

The **One Touch Command (OTC) Thunderstick** looks pretty much like Kraft's earlier sticks, except for eight new tic-tac-sized buttons on its lower panel. Don't be fooled, though: those little buttons make a big difference.

Using technology from Canadian-based Rosetta Technologies, these programmable buttons give you access to keyboard commands without the keyboard. Game developers can write games that support the joysticks directly (much as they do for CH Products' Flightstick Pro and Thrustmaster's Flight Control System), or you can program the stick yourself using an ultra-simple point-and-click template builder.

The technology behind the OTC Thunderstick is excellent. The builder's interface is slick and easy, and the joystick buttons can perform even complex multikeystroke functions that you need to perform, such as "release chaffe and a flare, then drop the flaps."

Unfortunately, the OTC Thunderstick suffers from a cheap, retrofitted look and feel. The added buttons are small and not particularly easy to find with your fingertips. You end up holding your other hand in a somewhat awkward position to reach them—unlike with competitors such as the Flightstick Pro, which puts its buttons within thumb's reach, or the Flight Control System, where each button is under a different finger.



The Kraft OTC Thunderstick resembles its ancestor in appearance only.

The OTC Thunderstick is only an intermediate step toward what will some day become a completely redesigned joystick combining multibutton programmable technology and improved ergonomics. Don't settle; hold out for the whole package. (Kraft; 800-275-7238; PC, $99.95)

–Christopher Lindquist

PHOTOGRAPH BY DAN CLARK

Click to play this Chinese harp, or any of eight different exotic instruments.

INTERACTIVE ROCK

Exploring Xplora 1

Peter Gabriel has been pushing the envelope for more than 20 years. Back when we both were young, I used to go to Genesis concerts and watch Gabriel use innovative staging, bizarre lighting, and outrageous costumes to experiment with multimedia, way before personal computers had even been invented. In the 1980s, I watched on MTV as Gabriel expanded the boundaries of music videos with award-winning animation and morphing for such songs as "Sledgehammer."

Now, with **Xplora 1 Peter Gabriel's Secret World,** I get to play along with my computer. The new Mac-based interactive CD-ROM holds more than 100 minutes of video, half an hour of audio, and 100 photos and images. It offers a close-up look at Gabriel's 1992 US album including its four exceptional music videos ("Digging in the Dirt," "Kiss that Frog," "Blood of Eden," and "Steam") and behind the-scenes interviews and interpretations of all nine songs on the album, including special art commissioned for each piece. You can also watch short video clips promoting Amnesty International and the Witness project (which gives cameras to resistance groups), including explicit images of political violence.

If you share Gabriel's fascination with world music, you can sample short bits of more than 30 discs from Real World Records—including Nusrat Fateh Ali Khan and Sheila Chandra. (Unfortunately, a similar discography for Gabriel omits his early work with Genesis).

For more on Gabriel's world music focus, you can peek into various stages and workshops in the World of Music, Art, and Dance (WOMAD) festival that Gabriel sponsors. Even more fun, you can "play" eight exotic instruments just by clicking on them. Hitting different areas produces different notes and timbres.

Xplora 1 lets you check out Peter Gabriel's hip WOMAD festival.

If you feel like a stroll, take a first-person interactive video tour of Gabriel's beautiful Real World studios in rural England. Click quick when you see the little white arrows, and you'll be able to watch Gabriel's recording sessions and even mix your own 4-track version of "Digging in the Dirt." It's fun to drop out Gabriel's voice and turn it into karaoke material, or to see how it would sound a cappella.

If you find a pass, you can go backstage at a Grammy Awards rehearsal.

The video tour also includes a chance to work with veteran musician and producer Brian Eno to create a custom jam session among 15 Real World musicians, including Sinead O'Connor, Jah Wobble, and Guo Yee. Unfortunately, only 49 predefined combinations actually result in video clips. "If we could start again," Gabriel says, "we would have created it so you could literally access any combination of musicians."

Meant to be explored, Xplora 1 includes few explicit directions and lots of surprises. Stay alert, look for and pick up the objects hidden throughout the disc, and you can watch backstage footage at rehearsals for the Grammy Awards. If you get lost, a postage-stamp-sized Peter pops up with advice and encouragement.

Unfortunately, pint-size video windows and less than full-motion action characterize the entire disc. While we're waiting for video compression, the music videos look better on TV and the songs sound better on a stereo. I think I'd enjoy Xplora 1 a lot more on a TV set-top box like 3DO or CD-i, where you could see a big picture and crank up the volume.

With an earnest tone leavened with dry wit, the disc manages to be engaging, distant, involving, politically correct, and narcissistic all at the same time, sort of like its subject. But "Secret World" doesn't reveal any big secrets.

While I liked the great music, interesting visuals, extensive background information, and interactive programming tricks, I would have welcomed more personal information about the enigmatic Gabriel himself. (MacPlay; 714-553-3530; CD for Macintosh, approximately $60)

—Fredric Paul

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IBM screens shown. Actual screens may vary.

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Spotlight

RUSSIA'S REDSHIFT

Traverse Time and Space

Observe scalable 3-D models of the planets from a nearby moon.

Forget the space race. With the end of the Cold War, U.S. and Soviet scientists no longer vie to outdo one another in exploring the cosmos. In fact, the Russians and Americans now share their knowledge freely.

One happy result of this cooperation is **RedShift Multimedia Astronomy,** a CD-ROM planetarium program that lets both novices and astronomy buffs electronically traverse time and space. The Mac disc was compiled by scientists and programmers from the Russian Space Mission Control at Kaliningrad. A Windows version should be available soon.

RedShift's breadth and level of detail are impressive. Choose any date between 4000 B.C. and 10,000 A.D. to check out specific astronomical events—simulate a solar eclipse or follow a planet as it travels, and record it in a movie. To explore a section of the night sky, simply select the desired object, and you get more information from a hot link to an online version of the *Penguin Dictionary of Astronomy.*

For an up-close view, RedShift makes it easy to zero in on a particular object of interest, such as Saturn. You can explore the gas giant's unique ring system and all 18 moons. As seen from its moon Dione, Saturn's surface churns with cyclones, erupts in jet streams, and reveals spots as great atmospheric clouds.

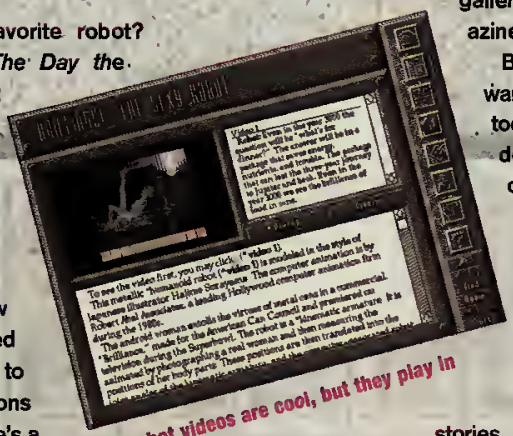
Once you get tired of Saturn, move on to different planets in the solar system or explore RedShift's impressive catalog of 200,000 stars and 40,000 space objects. Use the 700-image photo gallery to look up astro-photographs of nebulae, globular clusters, and supernovas. Be sure to watch the movie of the first moon landing; the video window is small, but movies run smoothly.

RedShift is one of the first edutainment titles developed by London-based Maris Multimedia. The program's technical sophistication is a boon for astronomy students; novices had better be prepared to browse extensively through the dictionary for help. (Maris Multimedia; 800-336-0185; Mac, $99) *–Joy Ma*

I Robot, You Jane

Who's your favorite robot? Gort from *The Day the Earth Stood Still,* R2D2 from *Star Wars,* or maybe Robbie the Robot from *Forbidden Planet?*

They're all here in **Isaac Asimov's The Ultimate Robot,** a new CD-ROM title published by Microsoft. In addition to film clips and descriptions of famous robots, there's a robot construction toolkit, a robot timeline, detailing the history of machine-making dating back to 36 million B.C., and animated diagrams of the principles of mechanical movement. Best of all, the disc offers a tribute to Asimov—a man who did more to popularize robots than anyone since Czech playwright Karel Capek came up with the term in 1921.

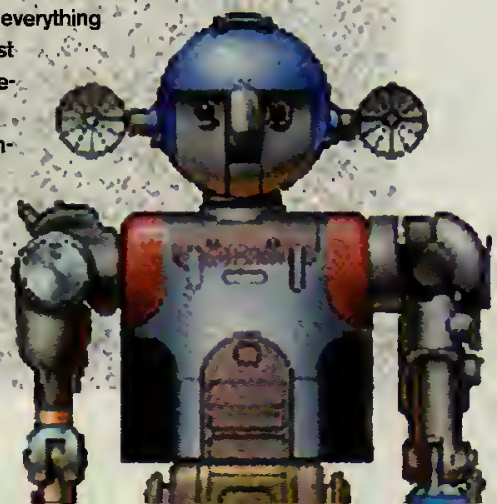


The robot videos are cool, but they play in tiny videos.

The Ultimate Robot includes the full text of more than 50 of Asimov's robot stories and essays, and even three short videos of the prolific writer expounding on robots, artificial intelligence, science, and space travel. Plus, there's a photo gallery of 11 portraits of Asimov, dozens of book plus magazine covers, and story illustrations.

But while there are plenty of places to visit, you won't want to stay anywhere very long. The robot construction toolkit—designed by Ralph McQuarrie, the production designer of *Star Wars*—is clunky and limited, featuring only rudimentary animations. And though the collections of robot memorabilia are interesting, real robot fans are left hungry for more. Worst of all, its programmers hardly tried to integrate the tiny full-motion video window into the rest of the program. The videos themselves jerk and bounce, even on a fast Mac.

The best part of The Ultimate Robot is Asimov's classic robot stories, which include everything from "Liar!" to "The Last Question." There's something ironic in reading these early odes to computers and robots on your Macintosh. (Microsoft; 800-426-9400; CD for Windows/Mac, $79.95) *–Fredric Paul*



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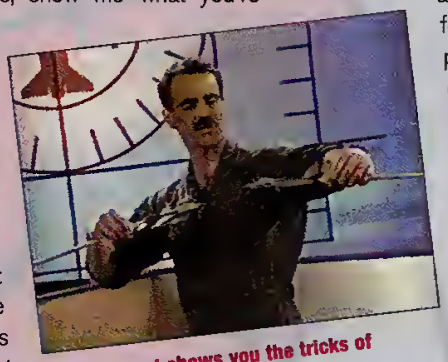
ART OF THE KILL

Top Gun for Flight-Sim Fans

The MiG-29 flashes past you at 500 knots, sunlight glinting off its canopy. "All right Boris, show me what you've got!" you mutter as you notch down to the left into a hard, low yoyo. You're maneuvering wildly to get on his tail, but somehow he turns the tables on you. The next thing you know Betty is screaming "Warning, warning, warning!" You hit the eject button and watch dejectedly as the electronic image of what used to be your F-16 spirals down and explodes into a flaming ball of wreckage. What went wrong?



Pete Bonanni shows you the tricks of air-to-air combat.

Most likely, what went wrong was that the MiG pilot—or your PC—knew more about basic fighter maneuvers (BFM) than you did. Today's combat flight simulators accurately model aircraft flight characteristics and weapons systems, so you need the same skills and tactics as real fighter pilots. But where do you learn these skills, short of enrolling in the Air Force Academy?

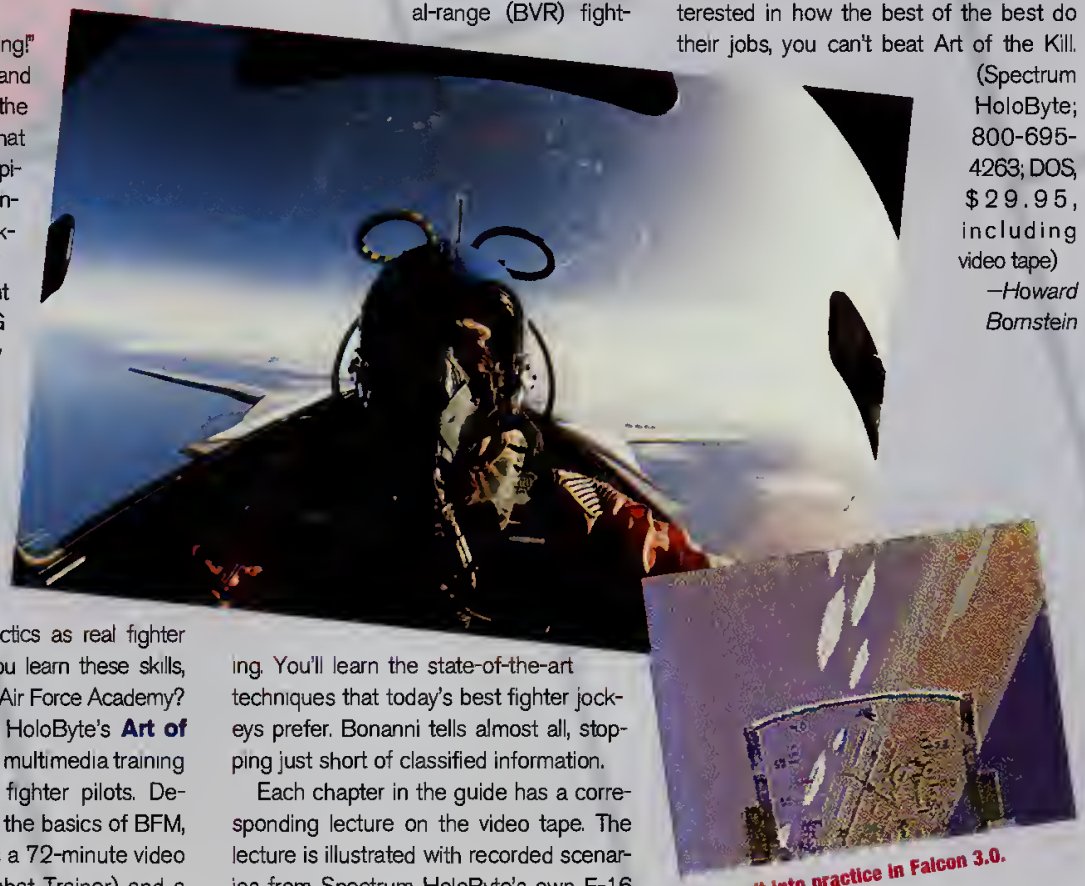
Answer? Spectrum HoloByte's **Art of the Kill,** an innovative multimedia training program for desktop fighter pilots. Designed to steep you in the basics of BFM, Art of the Kill includes a 72-minute video tape (Fighter Air Combat Trainer) and a comprehensive, 165-page training guide.

This is the real stuff. Author and designer Major Pete Bonanni, Weapons Officer and F-16 instructor pilot for the Air National Guard, packs his years of experience in fighter tactics into this book/video combination. Besides his illustrative and humorous anecdotes, Bonanni gives in-depth coverage to the geometry of air combat, offensive BFM, defensive BFM, and head-on BFM. Art of the Kill even has an introduction to beyond-visual-range (BVR) fighting. You'll learn the state-of-the-art techniques that today's best fighter jockeys prefer. Bonanni tells almost all, stopping just short of classified information.

Each chapter in the guide has a corresponding lecture on the video tape. The lecture is illustrated with recorded scenarios from Spectrum HoloByte's own F-16 simulator, Falcon 3. But although it comes with a playable demo of Falcon 3, Art of the Kill is not specific to any particular game or simulator. You can use Bonanni's tactics and techniques in any of today's realistic combat flight simulators or civilian combat flight schools, such as Chuck Yeager's Air Combat, Sky Warriors, or Air Combat USA.

If you're trying to improve your flying and fighting skills to show your favorite flight sim who's boss, you won't find another product with the kind of information and excitement you'll find in the Art of the Kill. Its unique book/video format makes learning both fun and easy. For serious simulation pilots or those who are simply interested in how the best of the best do their jobs, you can't beat Art of the Kill. (Spectrum HoloByte; 800-695-4263; DOS, $29.95, including video tape)

—Howard Bornstein



PHOTOGRAPH BY MICHAEL MELFORD/IMAGE BANK

Putting it into practice in Falcon 3.0.

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NOMAD is everything you'd want in an interactive adventure.

NOMAD

GAMETEK PAPYRUS

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THE PLANE TRUTH

Supersonic Fizzle

InterActive Publishing bills **Supersonic** as a multimedia guide to modern military aircraft. Like the Gulf War alliance, this CD-ROM title for both Windows and Macintosh is mixture of forces. Unlike the Gulf forces, though, Supersonic isn't assured of success.

Plot your course from Supersonic's main screen. It offers built-in help and an interactive guided tour.

The core of the program is a visual directory of more than 100 military aircraft and weapons, including many foreign aircraft and missiles. Each aircraft has its own card, with buttons on each card for General Data, Performance, Powerplant, and Armament. Clicking the Narration button gives you a spoken description of the aircraft. Along with the hard data, each card contains several color photos of the aircraft, and some cards also have aircraft silhouette identifiers, cockpit close-ups, and even QuickTime movies.

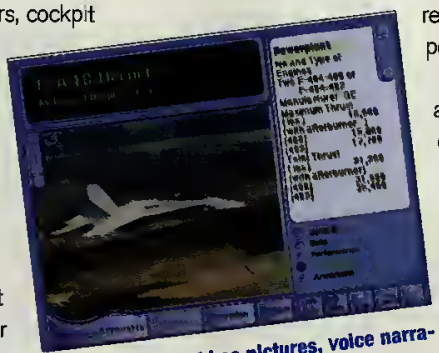
And a separate module also adds a takeoff simulator for the F-16 C/D Fighting Falcon. But don't start drooling into your face mask. This is a simple learning tool for understanding cockpit procedures before takeoff, not a complete flight simulator.

Plus Supersonic comes with a few simple aviation-oriented games—"Concentration," where you match pictures of identical aircraft, a simple bombing game, a silhouette identification game, and a puzzle. You won't get white knuckles from these, but they're good, clean fun.

Unfortunately, the card directory contains hard-to-find data on foreign aircraft, but it lacks depth. Each plane gets just two or three small photos, accompanied by the bare minimum of text. Similarly, the QuickTime movies are relatively scarce, short, and poorly edited.

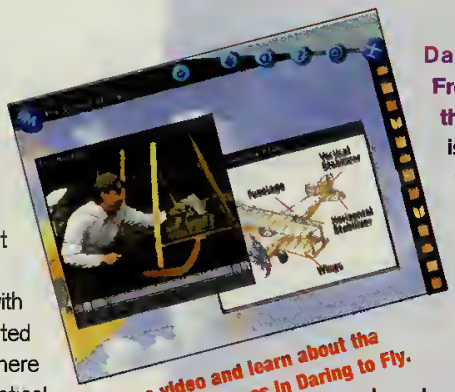
Supersonic gets points as a convenient source of general informationon a wide variety of aircraft. But it misses the mark by trying to do too many things at once. (InterActive Publishing; 914-426-0400; CD for Windows/Mac, $79.95)

—Howard Bornstein



Each aircraft card has pictures, voice narration, data, and in some cases, a close-up cockpit view and a short QuickTime movie.

In the Skies With the Red Baron



Watch a video and learn about the restoration of planes in Daring to Fly.

Daring to Fly! From Icarus to the Red Baron is the first of three titles from Arnowitz Studios to explore the history of aviation. With over two hours of sound, hundreds of still images, and close to an hour of video, this CD-ROM will appeal to aviation enthusiasts of all ages.

The easy-to-use navigation palette lets you control your journey through the history of aviation. By choosing a specific informational exhibit, you can watch a slide show about the life and times of the Wright Brothers, browse through videos chronicling the early days of flight, or explore Leonardo DaVinci's visions of flying machines. Activities for kids teach the principles of aviation.

The ballooning exhibit holds the most beautiful images, including a rendered drawing of an ornate hot air balloon stitched in gold.

PHOTOGRAPH BY A. T. WILLETT ©IMAGE BANK

Daring to Fly has beautiful renditions of early war planes, including the Red Baron's famous Fokker triplane.

Overall, this well-designed and informative multimedia title soars. (Maxis; 800-336-2947; CD for Windows/Mac, $69.95)

—Donna *Meyerson*

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TWYLA'S WORLD

Telling Stories Out of School

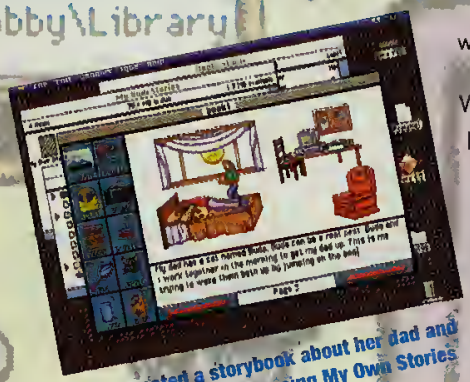
Making up stories is easy. The hard part is writing them down. But **My Own Stories** from MECC and **Creative Writer** from the Microsoft Home software line make it easy for me to create stories using text, sound, and pictures.

When you have to write something at school or at home, you start with just a blank sheet of paper so everything you put down has to come from inside your head. These two programs give you pictures and sounds and a lot of extra tools that give you ideas to write about.

With My Own Stories, the idea is to create a storybook of your very own. The one I created was called "Biscuit and Budapest," after my dog and cat. First I made a cover with the title, my name, and a cover design. Then I added pages with my own story and pictures that I picked from its selection of 48 background scenes and 500 everyday objects in 8 categories. There's also a library of sounds to connect to objects in the pictures. That way, you can make your dog bark or, if you want to be silly, sound like a speeding train or something else.

The program has a lot of tools for working on the pictures. You can make them bigger, flip them backwards, or change the colors. At the bottom of each page you write the story that goes with the picture. If you don't know how to spell a word, you click on the object in the picture, and it puts the word into your text.

My Own Stories is fun, but you'll get tired of it. After a while, everything looks pretty much the same. No matter what you do, the pictures and text always have to go in the same place (MECC; 800-685-6322; DOS/Mac, $49.95)



Twyla created a storybook about her dad and a cat named Budapest using My Own Stories from MECC.

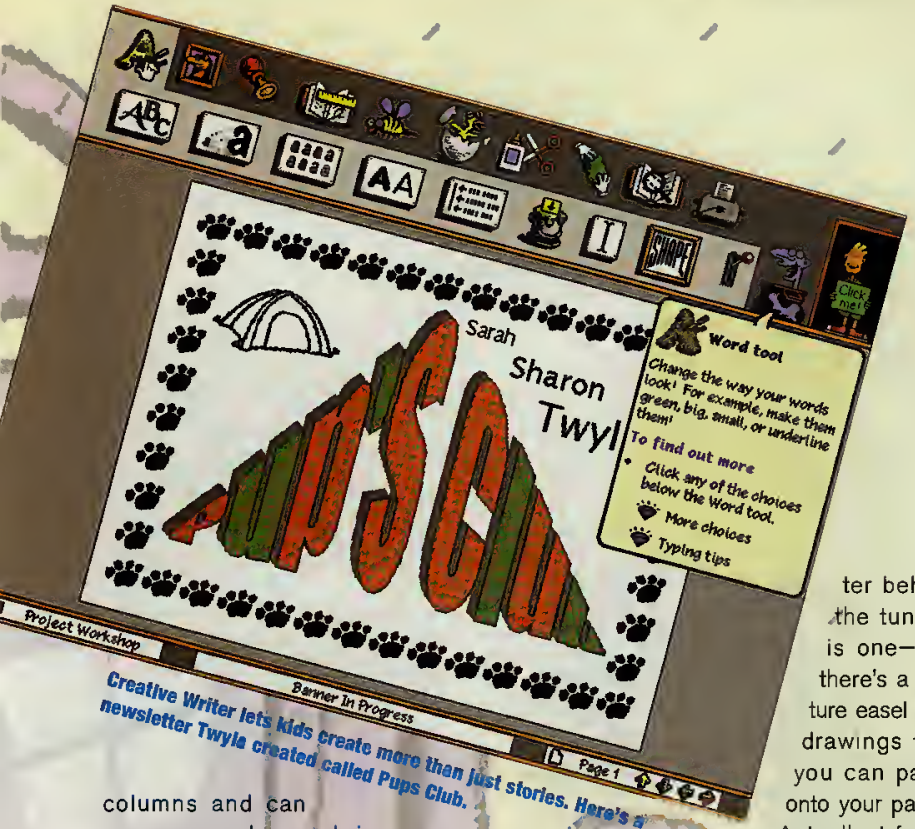
BEING A CREATIVE WRITER

You could say Creative Writer does a lot more, but in one way it does less. It doesn't have the same kind of picture libraries or tools for changing the pictures. But you get more choices besides single pages. Creative Writer has banners, cards, and whole newspapers that you can make. I used it to make a newsletter for the club my friends and I started—the Pup's Club.

When you use Creative Writer, it takes you to a place called Imaginopolis. A funny character who's named McZee guides you through a building with different floors for writing, doing special projects, getting ideas, or storing your work. McZee is a great guide because he is always telling you the things you can do in each place. There are also a lot of funny things that happen when you click on things in Imaginopolis.

The main part of Creative Writer is the Writing Studio, where you work on your page with all kinds of tools for changing the shape, color, and size of your words. I made my name look really neat. You can also add sounds and clip pictures. I put cavemen, dinosaurs, and even a robot in my newsletter.

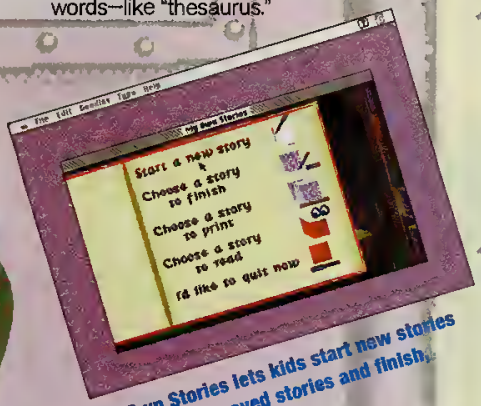
Once you get good at that, you can move on to the Project Workshop, where McZee shows you how to make special kinds of documents. My favorite was the newspaper project, because the program knows about



Creative Writer lets kids create more than just stories. Here's a newsletter Twyla created called Pups Club.

columns and can wrap your words around pictures, like my robot.

Unlike My Own Stories, which gives you the spelling of a word if you click on its picture, Creative Writer has a spelling checker that catches mistakes in your writing and suggests the correct spelling. It also has a thesaurus for looking up new words—like "thesaurus."



My Own Stories lets kids start new stories or go back to saved stories and finish, print, or read them.

The Idea Workshop is where you go if you can't think what to write about. It has a Splot Machine that makes weird sentences—"The horse erupted with laughter behind the tunnel" is one—and there's a picture easel with drawings that you can paste onto your pages. Actually, I found the selection of drawings kind of limited, and the Splot Machine gets boring after a while.

Creative Writer also gives you a Crayon Easel, a very basic paint program like Kid Pix. It doesn't have very many tools, so you can't make very interesting drawings with it. And Creative Writer doesn't have any ways to make your own art. (Microsoft Home has another program called Fine Artist that works with Creative Writer for adding illustrations.)

Creative Writer has some really nice extras, such as a great wall poster where McZee tells you all kinds of things you can do with the program.

I like both of the programs a lot, but I think I'll get tired of My Own Stories sooner since it really only does one thing. Creative Writer has a lot more things to do. I wish Creative Writer had better ways to add illustrations, though. (Microsoft Home; 800-426-9400; Windows/Mac, $64.95) *—Twyla Ruby*

Twyla Ruby, 8, attends Montclair Elementary School in Oakland, California. Her dad, Dan, helped her write this column.

Sugar-Coated Safety Tips For Kids

TJ Finds a Friend is a CD-ROM title that teaches kids some important lessons about avoiding real-world dangers. A cartoon story with bits and pieces of fun thrown in, TJ Finds a Friend serves its purpose, though its smarmy approach may make older kids wince.

The stars of the show—a boy named TJ, his friend Rose, and a dog named Boomer—spend a day showing us what's safety smart and what's not. Don't go with smooth-talking strangers unless they know the family "codeword," look both ways before crossing the street, make friends with kids who don't have any, and ultimately, keep an eye peeled for missing children.

Don't go with that woman, TJ! She doesn't know the codeword, so tell her to get lost.

John Walsh, host of "America's Most Wanted," appears to voice some of the most important safety tips. Each scene, accompanied by narration and conversation by the characters, also includes objects that animate when clicked. Click on the milk carton in the kitchen, for instance, and a cow's head materializes and moos.

That's about as much entertainment, and as much interactivity, as TJ Finds a Friend can manage. Worse, most of what the story teaches is common sense—there are only a few new pointers that younger kids should learn. Still, TJ Finds a Friend delivers what it promises: A cute cautionary tale that teaches, but doesn't frighten. (Artists for Multimedia; 818-999-9356; CD for Windows/Mac, $29.95)

-Gregg Keizer

ECOLOGICAL SAFARIS

Great Adventures for Kids

Kids love animals almost as much as they love adventure games on the computer. And software companies are catering to both enthusiasms in a growing genre of games that cast kids as characters on wildlife expeditions. Four of the newest send kids trekking into the wilds, doing everything from snapping pictures of scenes to helping a lion cub find her way home.

A puma on The Amazon Trail invites children to travel through the blue mist of time to save an Incan king.

AFRICA

SWeDE's **Africa,** the first in its Scavenger Hunt Adventure Series, takes kids ages 6 and up on a pictorial animal hunt through 16 hand-painted landscapes of 4 African climates—the Congo rainforest, the African savanna, the Sahara desert, and the island of Madagascar. The idea is to fill in the scavenger list by taking photographs of animals hiding in the landscapes.

Vica the Vulture guides children through the program and provides information about each animal and plant. Animals come to life in the more than 130 comic QuickTime animations. An ostrich talks a rap beat, and a zebra describes his "mohawk" haircut in a chill-dude voice. And kids can print line pictures of the animals to color in later.

The animals appear randomly in the landscape so that the game plays differently each time. Kids solve puzzles to move from one landscape to another. The puzzles themselves are adventures in learning; kids must answer questions about the food chain or match parts of an animal to its name.

The most dramatic aspect of the game is its virtual landscape. Kids scroll in full 360-degree movements by moving the mouse in any direction. They literally "walk around" Africa. (SWeDE; 800-545-7677; CD for Mac, $49.95)

THE AMAZON TRAIL

MECC's **Amazon Trail** takes fun upriver and back through time. Kids ages 10 to 16 travel by boat up the Amazon, exploring and stalking what's under the water and on the shore as they go. Their goal is to find and deliver cinchona bark so that they can cure the plague that's devastating an ancient Inca village.

It's a hazardous mission and death, as we quickly learn, is never far away. Kids begin with a full complement of food, supplies, medicines, and other provisions, but along the way boats capsize, supplies are lost, explorers get sick, and poisonous animals bite.

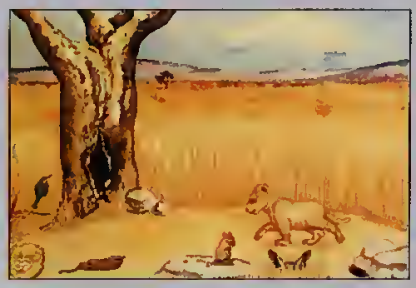
MECC's other Trail games, including the earlier Oregon Trail, are favorites in classrooms because they are best played in groups where kids can collaborate on strategies and projects that bring the fun offscreen. The game itself is not an easy play, and without the suggested Rainforest Activities that MECC lists in the manual, kids who take on The Amazon Trail alone might quickly burn out.

But the beauty of the game is how well it can be extended. There's plenty of history and nature here to hook kids' interest in books or in a trip to your local zoo, aquarium, or natural history museum. (MECC; 800-685-6322; DOS/Mac, $59.95)

ECOLOGY TREKS

Ecology Treks combines an incredible amount of environmental information with a concentration-style game that challenges kids ages 9 and up to use what they've learned. It's just one in a series of Treks games from Magic Quest. Each game throws a grunting animated robot, Bit Bot, into an adventure he can escape only if children correctly answer questions.

Ecology Treks' main menu lets kids choose between four fun adventures.



Maya is the star of Zurk's Learning Safari as children help her find her way home.

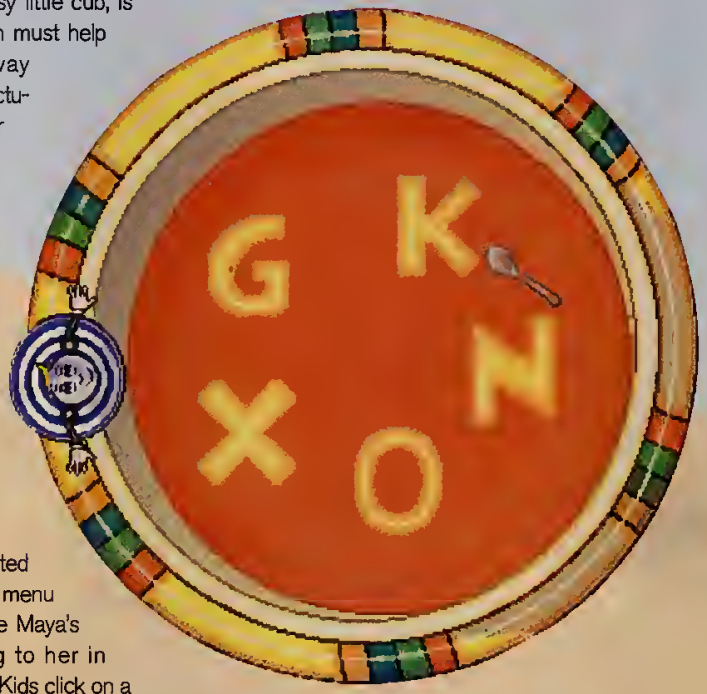
In Ecology Treks, Bit Bot must find his way back through the wilderness by answering questions and solving puzzles about ecology. The three other sections—the EcoExplorer, the Rainforest, and the EcoSimulator—comprise the instructional component by providing information about plants, animals, climates, ecosystems, rainforests, and earth cycles. Kids at the younger end of the recommended age range will enjoy the program more for the entertaining game than for the heavy text, charts, and line art in the info screens. (MagicQuest; 415-321-5838; DOS, $29.95, Mac, $49.95)

Kids explore the Congo Rainforest in Africa by using their mouse to "walk around" in full 360-degree movements.

ZURK'S LEARNING SAFARI

When you take a look at **Zurk's Learning Safari** from Soleil, it doesn't take long to realize that Zurk, the animated character who coaches children ages 3 to 7 through the activities, actually plays a supporting role. The real star is Maya, the lion cub who appears in a storybook adventure, one of seven game sets in the program.

Maya, the nosy little cub, is lost, and children must help her find her way home. Maya is actually the cursor and moves as children move the mouse, poking around to find the animals who will guide her home through scenes from the Serengeti Plain.



The program's seven games, are selected from an opening menu in which you see Maya's mother reading to her in their living room. Kids click on a toy box to see Zurk pop out with lessons about shapes. They can also choose one of the five puzzles that teach shape, color, and letter recognition. In the kitchen, they can call up an alphabet soup game. If they click a picture book of animals they can learn more about the animals of the Serengeti. Or, if they go to the closet they can play a hide-and-seek game in which children hide and find icons of the animals in scenes from the Plain. Parents may need to help younger children navigate through the safari adventures. (Soleil Software; 415-494-0114; DOS/Mac, $59.95)

–Carol Ellison

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Game On

Rusel DeMaria

Witch Hunt?

Poverty, domestic abuse, racial discrimination, illegal drugs, alcoholism... electronic games? I don't think so.

Computer and video games simply don't rate as a prime force eroding the moral fiber of America. Mortal Kombat, for all its silly violence, is hardly a leading cause of violent crime. And Night Trap—stupid game that it is—doesn't even come close to serving up the kinds of gratuitous sex and violence that has pervaded Hollywood for decades.

But it doesn't matter much what I think. Certain U.S. senators, following a variety of political and moral agendas, have involved the computer and video game industries in a McCarthy-esque witch hunt. As a result of the Senate's investigations, the computer/video game industry now faces perhaps its biggest crisis since the "crash" of 1984, when it went from boom to bust almost overnight.

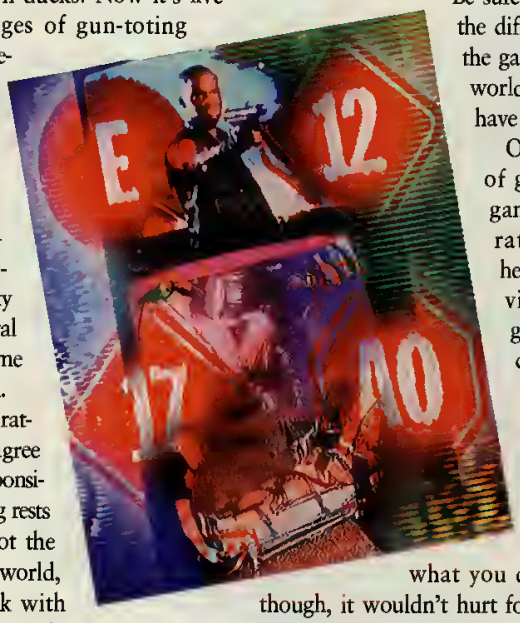
This crisis is not one of sales confidence or market stability. It's an inevitable result of the interactive entertainment industry's coming of age. And in some ways, it's the moment of truth that will move the game industry from the hobby and toy market into a true entertainment medium.

Solving the crisis and appeasing the Senate will clearly affect the industry. Sega has already pulled Night Trap from stores. An industrywide ratings system, similar to the one used by the motion picture industry, is almost a certainty. Some vendors, including The 3DO Company, have already suggested formats for such ratings. 3DO suggests four categories, ranging from E for Everyone to AO for Adults Only. Of course, everybody knows that an Adults Only rating will boost sales of products, even if few people are willing to talk about it.

I'm in favor of such a ratings system, preferably voluntary and handled by an independent agency other than the government. A ratings system will help people make buying decisions and informed choices concerning their exposure to graphic violence, adult themes, nudity, and sexual content, without overt censorship.

Each individual and family should follow its own guidelines for what is acceptable and what is offensive. The responsibility of the entertainment medium is to offer information about the products and let people decide for themselves.

Though it's absurd to scapegoat games, some action is necessary because the advent of full-motion video has changed the picture. Not that long ago, game players were shooting at cartoon ducks. Now it's live-action video images of gun-toting cowboys or machine-gun-firing thugs in such games as Mad Dog McCree and Lethal Enforcers. And it's obvious that a lot of people find the graphically brutal "Fatality moves" from Mortal Kombat too gruesome for younger children.



PHOTOILLUSTRATION BY LANCE JACKSON

With or without ratings, most people agree that the ultimate responsibility for child-raising rests with the family, not the media. In an ideal world, parents would talk with their children about the games they play, helping the kids deal with the violence they may encounter, and putting the game into context with the real violence that children see on the news or, all too often, must deal with on the streets.

When my eight-year-old son plays Mortal Kombat, for example, I talk to him about it. "Yeah. Right, Dad," he says. "Like I really want to rip someone's heart out. It's just a game, Dad." He's a smart kid, but not that exceptional. Most children know the difference between games and reality.

Children who can't distinguish fantasy from reality probably have bigger problems than computer games. Children who grow up in safe, supportive environments generally won't turn into ax murderers simply by playing games with violent content. To be fair, though, playing violent games *might* have some negative influence on players in high-risk situations, but nobody knows for sure.

My advice to concerned parents? Talk to your kids. Let your kids tell you what they're doing and what they think the game means. Be sure that they know the difference between the game and the real world, then let them have a good time.

Of course, a lot of grown-ups play games. Voluntary ratings will help here, too. Whether violent or erotic games are your cup of tea, clearly rated games and multimedia titles will make it easy to find what you like and avoid what you don't. Overall, though, it wouldn't hurt for developers to take a closer look at the values and subtexts they present—not so much to eliminate violence and sexuality, but to ensure that the consequences and the context are also included. Perhaps what desensitizes us most is gratuitous violence presented just for the thrill of it.

Rusel DeMaria is E2's games editor and the author of more than 25 computer and video game strategy books.

OTHER GAMES MAY TALK.
THIS ONE HAS A VOICE.

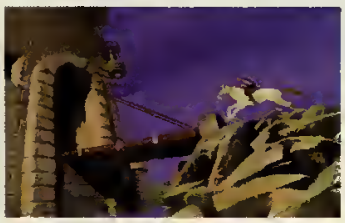
Star Trek: The Next Generation's

PATRICK STEWART

in

LANDS OF LORE: *The Throne of Chaos*

With Patrick Stewart as the voice of King Richard, *Lands of Lore* has a royal advantage over other fantasy games: An actor of real authority in a role of authority, at the head of a huge cast of heroes and villains who speak, rant and roar their way through the most vocally interactive role-playing adventure yet devised. (A mammoth 130 MB of digitized speech makes it possible.)



The Dark Army is on the move, led by the shape-shifting sorceress Scotia—and each time you meet her she'll be more powerful and terrifying than the last. But your powers can grow, too. Experienced-based character development makes great warriors of those who take arms (in real-time combat) against a sea of indescribable monsters and makes mighty wizards of those who cast Larger-Than-Life spells. Explore ancient castles, living forests, hidden lairs, bustling towns, haunted caverns, through 30 enchanted levels made vividly real by more than 20 MB of compressed art and special effects.

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Party Girl

Hippie Wrestling

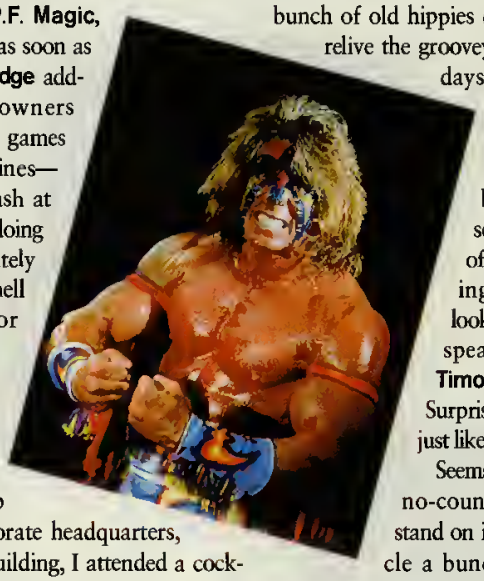
Call me juvenile, but when I'm in the right mood I kind of like to watch the **World Wrestling Federation.** Beefy WWF stars like **The Ultimate Warrior** and **Hulk Hogan** put on quite a show. And maybe my interest is understandable, considering that I spend most of my time shaking down pretty-boy execs for inside scoops.

With all the huffing and puffing, there's something really cool about knowing that all the violence is just a game. And that's why it makes so much sense that Hogan and other wrestlers are starting to show up in computer games and multimedia titles. In fact, as I walked by a bunch of wrestlers bellying up to the buffet after a recent match in Las Vegas, I wasn't at all surprised to overhear that the WWF people are working on a whole series of PC games.

But you'll never believe who I ran into the day I returned to Silicon Valley. **Chuck Norris!** Turns out that Chuck was in town to talk to software executives about doing some sort of interactive CD. Apparently the whole thing fell apart when Norris got an offer from **The Software Toolworks** for a measley quarter-million dollars. Norris figures he's worth a few more mil than that, and dumped the whole deal. Stupid move, Chuck. CD-ROM ain't the movies—at least not yet—and in the meantime your ponytailed rival **Steven Seagal** is already doing **Nintendo** and getting ready to roundkick his way into the CD-ROM format any minute.

Oh well, being big or tough doesn't mean you're smart, but it always helps to move fast. Take **Microsoft.** If there's a fast-talking, slow-moving Hulk Hogan of software manufacturers, that's it. But no one ever said Microsoft was stupid, so I didn't bat an eyelash when I spied famous **X-Wing** designer Larry Holland skulking into Microsoft's Redmond, Washington, headquarters recently. Holland—or someone of that caliber—is exactly who Microsoft needs if it wants to churn out titles half as good as the stuff fast-moving little companies like **Trilobyte** and **Drew Pictures** are publishing.

And speaking of terrific titles, I have one word for **The 3DO Company,** and that's "Finally!" After a seemingly interminable wait for decent titles, not just warmed-over versions of popular Mac and PC games, a few good ones are now starting to emerge. I just love **Gridders** and **Pataank,** from **Tetragon** and **P.F. Magic,** respectively. And as soon as **AT&T** ships the **Edge** add-on to let 3DO owners enjoy multiplayer games over telephone lines—and even talk trash at each other while doing it—there'll definitely be a reason to shell out the dough for a system.



But the best reason may be voice recognition. In that aging Honeycomb Hideout of corporate headquarters, **IBM**'s Armonk building, I attended a cocktail party to mourn the closing of this famous retreat. But all anyone could talk about was how 3DO is trying desperately to secure exclusive rights to IBM's whizzy voice-recognition software. The technology lets people control computer software just talking to it. If 3DO succeeds in garnering exclusive set-top rights, it'll be the only box in town that'll let you play by shouting.

Sounds like fun, but not half as fun as my new favorite game, **Sierra's King Quest V.** I know it's been out awhile, but playing around with my debugger recently (on a clearly illegal hunt for possible cheats—don't try this at home), I discovered a chunk of code written specifically to support speech recognition. So I bribed an inside source with dinner and drinks at San Francisco's fabulously old-fashioned **Top of the Mark,** and he confirmed that Sierra built in the code years ago and is now talking to IBM about Big Blue's hot technology.

On the other hand, some old-fashioned things are best left alone, as I discovered when I turned up at San Francisco's legendary "Be-In." I'm too young to remember the sixties, so I thought it would be charming to see a bunch of old hippies desperately trying to relive the grooveyfreeloveflowerpower days. I could have been more wrong. There was plenty of software on display—but you could hardly see or hear it because of the goofy black-lighting and silly, Dylan-lookalike strummers. And speaking of lookalikes, **Timothy Leary** was there. Surprise, surprise! He looks just like **Merle Haggard.**

Seems to me the new techno-counterculture ought to stand on its own, not just recycle a bunch of baby-boomer clichés. If I want to tune in, turn on, and drop out, give me something new. Sure, I'll try out the interactive rock 'n' roll CD that **The Grateful Dead's Jerry Garcia** is reportedly working on, and I bet **Tony Bové**'s Haight-Ashbury documentary will be mighty cool, too. But looking backward will never unleash the full power of multimedia. The only way to do that is to move forward. I'm thinking of throwing my own high-tech rave to show everyone how it ought to be done. Look for me near the smart bar.

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Tube Man

Keith Ferrell

And Now the News

It's no news that we're addicted to the news. And it doesn't take an investigative reporter to see that the nature of the news we receive, particularly from television, has changed dramatically over the past decade. Drama, indeed, may now be the key element in what's delivered to us as news.

Not necessarily high drama, either. It took a massive earthquake this winter to drive the figure-skater feud from the lead-off position. Amy Fisher may have received more air-time than Vaclav Havel. And Lorena Bobbitt!

So what about the news that will come to us via interactive TV and the so-called information superhighway? If television news programming is driven by ratings—and it is—will interactive news be driven by new measures of user interest?

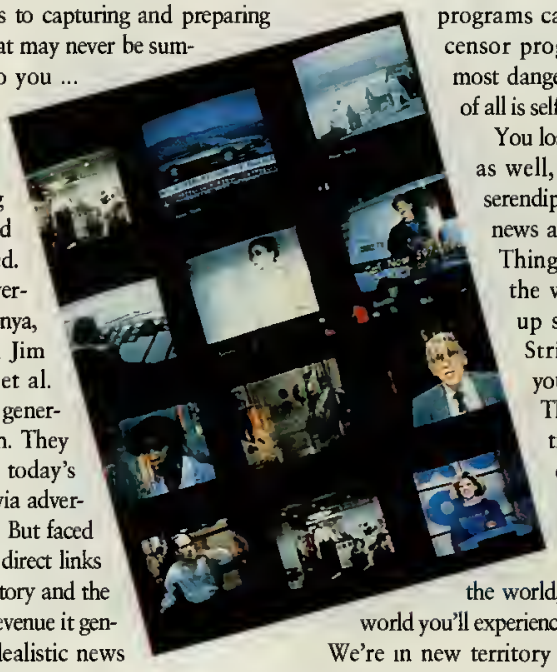
The common view of the evolution of news in the interactive age rests upon two factors: the ability to program news retrieval to focus only on those stories that are of the greatest interest to you, and the ability to summon more information on those stories.

At first glance, the opportunity to program the news to suit your interests sounds appealing. Such a tool could give television news more of the random-access advantages of a newspaper, while maintaining the visceral impact that powers broadcast journalism. TV news today imposes itself and its rhythms on you. You have to sit through stories you're not interested in just to get to the ones you are. That's why they have teasers—to keep you watching until you get to the good stuff. With interactive news, you won't have to wait for what you want to see.

But what does this do to news-gathering organizations? Let's be honest—the vast majority of people will demand the latest Tonya Harding, Lorena Bobbitt, or Joey Buttafuoco update. Only a few will request the latest from Bosnia. That's fine—egalitarianism in interactive action.

Now put yourself in the position of a news organization's manager. How many resources do you apply to Bosnia, when the number of requests for Bosnian news is minuscule and shrinking? How do you justify stories that only a few people will see—no matter how important you think they are?

Then add the "for further information" component. Do you commit your organization's resources to capturing and preparing information that may never be summoned? Or do you ... pander?



PHOTOGRAPH BY GEOFF GOVE ©IMAGE BANK

There's no question that the pandering will be pampered and well-funded. Interactive coverage of Amy, Tonya, Joey, Lorena, Jim and Tammy, et al. will doubtless generate lots of cash. They already do on today's TV, indirectly via advertising revenues. But faced with clear and direct links between each story and the audience and revenue it generates, even idealistic news managers will be hard pressed to justify producing stories on Bosnian atrocities or congressional wrangling.

If you want to go further, you might ask just how much information should be delivered to each household each day? And are there stories that every household has to receive, whether its members ask for the information or not?

Suppose you're designing an interactive news system. You give the end-users the opportunity to design their own filters, a sieve to strain away unwanted news. Should you impose overrides? Are there stories that you feel obliged to deliver? What are they? Presidential statements? Congressional votes? Tax increases? Natural disasters? One assumes that declarations of war would pass through any sieve.

But you can't be sure. There is a real risk that interactive technology will become an information cocoon, shielding us from unpleasantness, however important the information may be. Filter programs can also become censor programs, and the most dangerous censorship of all is self-censorship.

You lose something else as well, and that's the serendipity of unfiltered news and information. Things you learn on the way to looking up something else. Striking oil when you dig for worms. The more sophisticated and specific a software sieve you put between yourself and the rest of the world, the less of that world you'll experience.

We're in new territory here, and there will be debate, counter-debate, laws, regulations, and repeals coming furiously over the next decade, as the technology grows at an even more furious rate. Of course, we may miss learning about it. The news won't get through our filters.

Keep watching.

Keith Ferrell is the editor of Omni, *editorial director of* Compute, *and science and technology editor of* Penthouse, *each of which covers the interactive revolution in its own way.*

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Batter Up!

We scout the world of computer baseball, pitting the pretenders

By Don Steinberg

I HAVE THIS RECURRING DREAM: I'm working as a temp, when my agency gets a call from the Philadelphia Phillies.

All their shortstops have been injured. Could the agency send someone over right away? I grab my Phils hat and flag down a cab. I arrive at Veteran's Stadium just in time for the game and dash onto the field to the roaring cheers of the crowd. But then I realize they're not cheering. They're laughing. I look down, and to my horror, I see why—I'm not wearing a glove!

Guys like me, we can only fantasize about being big leaguers. That's why, when every new season rolls around, we find as many ways as we can to participate vicariously in the old ball game, watching, playing, collecting, compiling, and calculating. It's baseball mania—a madness that has only intensified with the advent of cheap computing power.

You can turn your joystick into Lenny Dykstra in a graphically rich arcade-style version of the game or run a detailed recreation of the 1910 season using a pro-

against the contenders and the hot prospects against the veterans.

gram that crunches more numbers than the Human Genome Initiative. Want reams of reference materials? Computers have "turned the sea of baseball statistics into a veritable flood," says Gary Gillette, author of *The Great American Baseball Stat Book*.

Maybe you don't want to spend your time "simulating" statistics. You can use your computer to run a fantasy league that's based on statistics from real games. (Fantasy leagues are also known as Rotisserie leagues, after the name of the Manhattan restaurant where the game was invented.) Or you can boot up and tally the value of your baseball card collection. Or get help in laying down the occasional wager on a ball game. You may even want a device to carry with you at all times, so you'll never need to ask anyone who won the 1935 National League batting title—Arky Vaughan hit .385.

To help baseball fans everywhere find just what they want, or sincerely believe they need, I killed the better part of the off-season scouting every computer baseball product I could lay my ungloved hands on. As spring training gives way to opening day, I'm here to throw out the first trackball for *E2's* 1994 Computer Baseball Scouting Report. The standings show the top 20 prospects, listed not by position but by sheer talent.

To the men in my support group (also known as the Bill Buckner Rotisserie League—fielding doesn't count), this was a completely worthwhile endeavor. To my wife—and to theirs—I can only say, "I'm sorry."

PHOTOGRAPHS BY JAY TSE, SD-E

1 Tony La Russa Baseball II

Statistical purists will kill me for selecting this graphically based game as numero uno over programs that deliver nothing but crunched numbers. But Tony II is the top computer ball game because it gives you both worlds—accurate statistical simulation and arcade-style animated play—plus a fascinating hybrid mode.

Supporting its claim to legitimacy, Tony II's graphics aren't just there to look pretty; in the statistical model that underlies the game, batters don't hit preordained "doubles" and "singles" as the result of a computerized roll of the dice—rather, they hit balls at varying velocities in different directions. The ball travels according to real laws of physics, and the result of each batted ball depends on the positioning and speed of the fielders, the ballpark's layout, and weather conditions such as wind and temperature. That's the kind of attention to detail that warms the hearts of true baseball fanatics.

Tony La Russa offers the best combination of graphics and game play.

When played arcade-style with a joystick, Tony II's pitching is intuitive, but batting is nearly impossible. Alternatively, you can shut off the player animations and run games in a lightning-fast mode that still uses the physics-based model. On my aging 386/33 PC, Tony II ran a whole 162-game major-league season in 30 minutes. The onscreen compilation of statistical reports is great: You can switch from seeing NL Home Run leaders to AL Stolen Base leaders with two mouse clicks. Printing isn't as flexible, though.

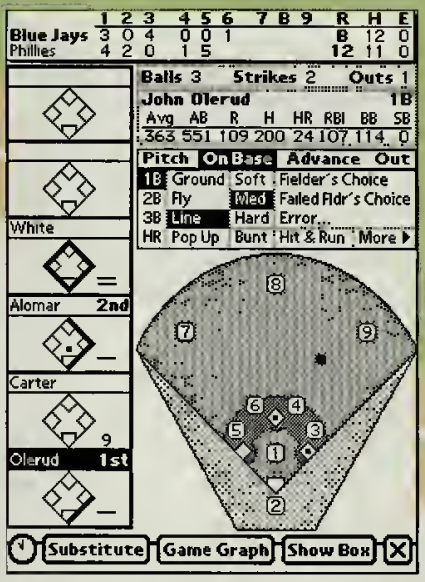
Trading players is managed more elegantly here than in any other game. All league-administration utilities are included in the basic game package, and publisher Strategic Simulations recently released a CD-ROM version that includes the core game, 1992 player data, a stadium collection, and a Fantasy Draft add-on that lets you put together a fantasy team in a startup league against computerized or other human owners.

But the Tony II feature that helped me survive the winter is its ability to simultaneously simulate both the numbers and the physics of baseball. I set up games to be played in graphics mode using real player stats, then sat back to watch the results. Pitchers, batters, and fielders go through lifelike motions; if you squint, it almost looks like TV. (Strategic Simulations; 800-245-4525; DOS, $59.95; CD for DOS, $80)

2 Fingertip for STATS—Baseball

Here's the excuse you've been waiting for to buy yourself one of those Newton gizmos. Running on Apple's much-hyped personal digital assistant, this touch-pad software should bring joy to the pocket of every fantasy leaguer and revolutionize the world of mobile baseball computing. Fingertip's baseball software integrates several standalone applications with an (optional) modem connection to the fountain of baseball data called STATS Online (see the ninth-place finisher).

Before you watch a game, you can download the current numbers for players on both teams, including relevant batter-versus-pitcher breakdowns. As you score the game using Fingertip's touch-activated electronic scorepad, your Newton makes situation-specific data available at every turn. Fingertip also accesses STATS's other services, including standings and statistics, inning-by-inning box scores of games in progress, customized reports on the players who you select (your Rotisserie-league team, say), a nationwide trivia contest, and participation in Bill James's fantasy leagues.



Fingertip for STATS–baseball proves PDAs can be fun.

Just think: You'll never again have to be anywhere without knowing what base Rickey Henderson is on. While Fingertip for STATS is available only for the Newton, look for a Windows-based version for Compaq's anticipated WinPad-based PDA to debut in time for the Series. (Fingertip Technologies; 800-349-4653; Apple Newton, $129, STATS Online subscription extra.)

3 Franklin Digital Book System

Somebody had to put the seven-ton encyclopedia of baseball statistics into a handheld calculator, and Franklin did it three years ago, with its Big League Baseball Encyclopedia. But that was an expensive dedicated device; it seemed excessive even to me.

Now the same encyclopedia is available as a swappable cartridge that clicks into Franklin's pocket-sized Digital Book System. The general-purpose DBS also runs so-called useful applications such as language translators and the Physicians Desk Reference, so no one will hassle you too much for buying it. The encyclopedia contains all major-league stats since 1876 and still generates amazing lists from simple queries. For example, typing MAX HR 50–59 lists the top home-run hitters of the 1950s (nope, Mantle was fourth). Is it worth almost $200 to know instantly and anywhere the all-time stolen base leader weighing over 200 pounds? (Kirk Gibson.) Absolutely.

Franklin's Digital Book System has "useful" programs, too. Who cares?

Ingeniously, Franklin built two cartridge slots into the DBS and offers two other base-

ball applications that can fill the second slot. If you snap in the All-Time Baseball Manager game next to the Encyclopedia, you can play using the stats of any players in history. And debuting for this season is the Franklin Fantasy Baseball Analyst. The Baseball Analyst is a database of 2,500 current major leaguers and prospects, with software to help fantasy managers pick 'em wisely. You can send in your cartridge for an electronic update at the All-Star break.

All in all, the DBS is a spectacular and comprehensive way for baseball nuts to waste time. In fact—and this is a higher compliment than it sounds—I suggest keeping it within reach of the toilet at all times. (Franklin Electronic Publishers; 800-762-5382; Digital Book System, $129; Big League Baseball Encyclopedia, $69; All-Time Baseball Manager, $49; Fantasy Baseball Analyst, $249 including update)

ABPA Presents Baseball for Windows

The two national pastimes, baseball and Windows, are together at last. Finally, I can waste my time playing baseball games without wasting time exiting Windows. Baseball for Windows descends from the long-popular ABPA board game. Strictly a text-and-numbers setup, it's a prettier version of Miller Associates' DOS version and can use any player data for the DOS version you may have lying around the house. (But only the DOS version can be played online via Computer Sports Network.)

Windows tightly integrates the game's league scheduler, draft manager, and stats-reporting modules (all included in the basic price), letting you switch among them (or any other application, for that matter) without ending an in-progress game. Games can be played individually with textual play by play, or in a fast season-replay mode. You can even (grudging thanks to Microsoft) run two Windowed games at once. Reports are handsome and almost infinitely flexible (in case you want to list pitchers who've allowed the fewest triples). Coming this spring: a CD-ROM version, including play-by-play commentary. In an industry first, a live announcer will intone real player names as they come to bat.

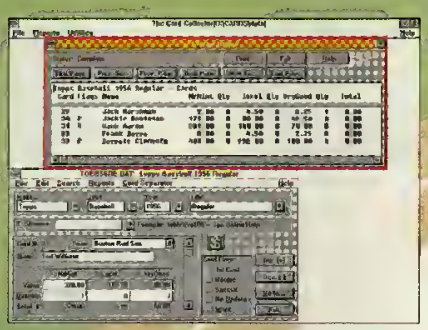
Baseball and Windows make a terrific double play in ABPA Presents Baseball for Windows.

Drawbacks are few. The VGA ballpark illustrations are lavish but functionless. And I'd like to see better use of Windows. Mouse clicking to "swing away" offers no scientific advance over pressing the space bar, but drag-and-drop lineup changes would be truly cool. (Miller Associates; 800-654-5472; Windows, $69.95; CD for Windows)

The Card Collector

Long ago, I tracked my baseball card collection using Magic Markers to fill in the boxes on the checklist cards that came in the bubblegum packs. Today, this would be considered barbaric. More to the point, those old checklists are now valuable—you don't want to spoil their "mint" condition by actually using them.

Card collecting is big business these days, and as in any business, the use of proper inventory-management software is *de rigueur*. The Card Collector is by far the best of this breed. It's available for DOS, Windows, and Macintosh, and it includes every baseball card checklist since 1948, from about a dozen card companies. You'll never have to manually enter the words "Ken Holtzman" again. Just pick a set using pull-down menus, tell the program which cards you have, and it'll tell you which ones you need. Or vice versa. There are more functions than most collectors will need—enough, in fact, for those slimy creatures who call themselves baseball-card dealers. (AbleSoft; 800-467-3555; DOS/Windows, Mac, $49.95)



These days, The Card Collector is practically business software.

USA Today Sports Center

USA Today is the daily bible for box-score addicts, so it's no surprise the newspaper's online service is an ideal fix for the baseball junkie. Sports Center's fodder includes breaking news, in-progress box scores, game recaps, stats, standings, schedules, rosters, and transaction reports. Extensive minor-league stats should please fantasy-league zealots, as should downloadable weekly files in formats compatible with Rotisserie-league-commissioner programs. The statistics aren't broken down in as many ways as in STATS Online, but USA Today can be cheaper and has an added bonus: You get access to other information from USA Today, including news stories about real life. (USA Today; 800-826-9688; $9.95 per month plus $14.95 per hour before 7 p.m. weekdays)

The USA Today Sports Center is an online bible for baseball fans.

John Benson's Draft Software

Imagine striding into your annual Rotisserie-league draft with software that will tell you, in real time, which players you need and how much to bid on them. This slick package fills the bill. It isn't commissioner's software for the weekly grunt work of producing reports. It's for an individual team owner, before and during draft day. At its heart are *Baseball Weekly* columnist Benson's projections of players' statistics for the upcoming season. You input specifics about your league, such as how many dollars (er, "points") each team can spend, and it

helps you draft an optimal squad. The bid amounts it suggests can even change during the draft as available talent grows scarce. The program also shows you a running prediction of the league's final standings as draft progresses. This solidly written, fast, and

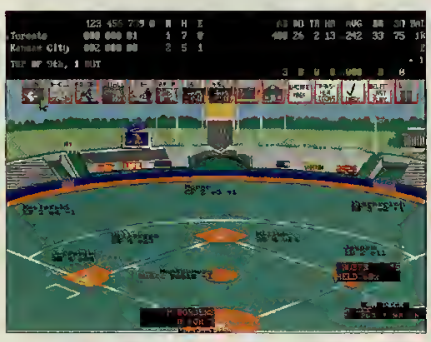
John Benson's Draft Software gives you the fantasy-league edge.

intuitive DOS software won't guarantee that you win your league. But it'll intimidate the heck out of the other guys, and that alone makes it worth the price. (Diamond Analytics; 800-707-9090; DOS, $49.95)

9 Strat-O-Matic Computer Baseball

Strat-O-Matic wins the prize for most obsessively accurate statistical performance. Now in release 4.0, it's a PC version of the universe's most religiously researched and played—and most widely sold—baseball board game.

The folks at Strat-O-Matic claim to take 2,000 man-hours to produce a single season of player data. Instead of simply using seasonal stats from record books, they review box scores of every game to discover lefty-versus-righty performances and other hidden attributes. If you want a game that accurately rates the throwing arm of Detroit's 1941 right fielder, this is the ticket.



Strat-O-Matic is manna for stat-starved fanatics.

The DOS-based program runs quickly and solidly. Its only concessions to graphics are VGA ballpark backdrops and postage-stamp-sized pitching and batting animations. Leave them off—they just slow game play. Version 5.0, due out this spring, is expected to have a graphical interface. Like Tony II, Strat-O-Matic includes a fun Draft-O-Matic utility that lets you create a fantasy team from scratch while the computer drafts for other teams.

But this only begins to describe the features and managerial options available to fanatical Strat-O-Matic players, who are known to line up at the door of company's headquarters on the day each new season's player data is released. (Strat-O-Matic Game Company; 800-645-3455; DOS/Mac, $60 including one season of stats)

8 STATS On-Line

STATS is a baseball data factory whose customers include ESPN, *USA Today*, the developers of Tony La Russa II and other computer games, and numerous individual subscribers who demand that their numbers are sliced seven ways to Sunday. STATS On-

STATS On-Line gives you the data straight from the source.

Line was the first service to provide in-progress box scores.

It also provides extensive current-season news and stats, plus downloadable files for fantasy leaguers that can even include daily reports on customized player lists. STATS offers two different fantasy leagues designed by master statistician Bill James (one that's played over the winter), plus real-time Strat-O-Matic play against other subscribers. Dialing in with your own communications software at up to 9,600 bps is hassle free. (STATS; 800-637-8287; PC/Mac, $30 setup fee plus $.75 per minute prime time, $.25 per minute other times)

10 Prodigy

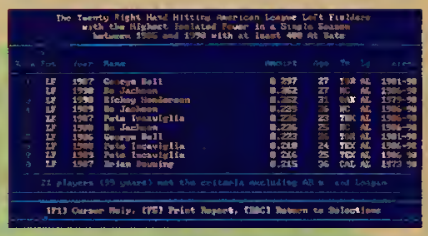
With extensive news and a great online fantasy game, Prodigy is the best general-purpose online service for baseball hackers. Its baseball section includes game updates and box scores, league standings and stats, team reports, a column by Peter Gammons, and extra-fee bulletin boards.

Prodigy offers a safe haven for hardball hackers.

The Baseball Manager fantasy game is spectacular, though expensive to play. Unlike conventional Rotisserie leagues, it pits the team you've drafted (in a fun and strategic draft session) against a different league rival every night, based on stats produced in major-league games that same night. Results are presented each morning via a graphical newspaper screen with personalized stories. You can play Baseball Manager for the whole season or begin in a shorter "lightning league" any time during the year. (Prodigy; 800-776-3449; PC/Mac; subscription, $14.95 per month; Baseball Manager, $119.95 for full season, $60 for half-season "lightning league")

11 The Bill James Electronic Encyclopedia

This year's version of the Bill James Electronic Encyclopedia improves slightly upon previous editions by including career records for everyone who's played since 1989. But I'm more excited about the new Windows version, due later this spring. It'll offer all major-league stats in history, and the Windows interface will add flexibility to an already sophisticated search-and-sort capability. Want to see all left-handed Braves' third basemen, sorted by slugging percentage? No problem. Later on, expect a way to transfer the Windows Encyclopedia's stats directly

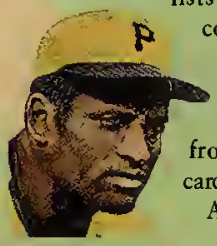


Bill James is *the* baseball authority. Just wait for the Windows version.

into Miller's Baseball for Windows game. Then you'll really have no life. (Miller Associates; 800-654-5472; DOS, $29.95 or $14.95 as upgrade; Windows)

12 Total Baseball

Adapted from the gigantic Jon Thorn/Pete Palmer book of the same name, the Total Baseball CD-ROM disc (for DOS or Mac) takes advantage of the computer's mass storage more than its calculation abilities. It has an encyclopedia of all major-league player stats since 1871, but only in text format, so you can search for Ted Williams but can't sort his stats into custom lists. The numbers are complemented by the book's thoughtful essays on every aspect of baseball, from Japanese ball to card collecting.



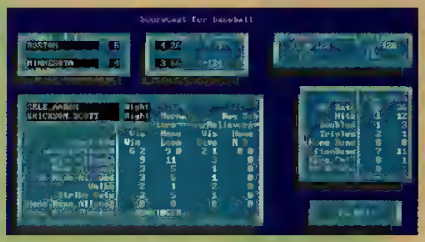
Roberto Clemente is just one of the hundreds of portraits in Total Baseball.

Acknowledging multimedia, the disc throws in 20 audio clips of great moments and best of all, 220 beautiful player portraits (the book has none). As with all products updated annually, make sure you buy the version with the latest season's stats; older versions may still be on sale at discounted prices. (Creative Multimedia; 503-241-4351; CD for DOS/Mac, $69.99; annual upgrade, $29.99)

13 Scorecast

I say you have to be nuts to gamble on baseball games, but look who's talking. If you do wager, this PC-based handicapping program from Computer Sports World is a good first bet. Scorecast will predict the final score of any game, using a "secret internal formula" that takes into account the pitching matchup, game conditions, and recent team and player performance. Stored in its incredible database are the results and pregame Las Vegas odds for every major-league game played in the last five years (you can access these individually; they're fun to see even if you don't gamble).

As the season progresses, you can download daily game results and new pitching



Scorecast is a good bet for baseball gamblers.

matchups from Computer Sports World's online service. This is for heavy hitters, though, not your average fantasy leaguer. The only fantasy it promotes is the age-old delusion that you can get rich quick. (Computer Sports World; 800-321-5562; DOS, $99; online service, $250 per season or $.53 to $.99 per minute)

14 Pursue the Pennant

Hate documentation? Keep reading. This menu-driven game, now in version 5, is so intuitive to use that the manual seems like overkill. You can start playing games, scheduling seasons, maintaining leagues and teams, and reporting realistic statistics right out of the box. No other game is easier to play. And thanks to tight code and a minimal DOS interface, it's also the fastest, whether you have your PC simulate chosen contests or manage teams yourself. You can play a whole game, skippering both sides and without sacrificing strategy, in about ten minutes.

Pursue the Pennant lets you play a whole game in 10 minutes.

That makes Pursue the Pennant—despite its lack of graphics and obsessive levels of player data—the best simulator if you like to play games manually and want to play enough of 'em to produce meaningful standings and player stats.

Question: How do you know when your addiction to baseball has permanently alienated your spouse? Answer: When you start referring to simulated baseball statistics as "meaningful." (Pursue the Pennant Company; 800-765-4787; DOS, $74.95)

15 CompuServe Information Service

With its Associated Press wire service reports, CompuServe offers fine in-progress and postgame reports. Its unique selling point, however, is its Sports Simulations Forum. This is the place where hardcore

CompuServe lets you chat about America's pastime any time you want.

sports gamers heatedly debate such topics as Seattle's second-base dilemma and can ask questions directly of game companies. The Forum's libraries contain game-related shareware and "homebrewed" player files for use with commercial programs. CIS also runs online, Rotisserie-style fantasy leagues, with prizes that league champs can really use—CIS usage credit. See the Forum's Fantasy Baseball library for details on '94 leagues. (CompuServe Information Service; 800-848-8199; $8.95 per month plus $4.80 per hour at 2,400 bps)

16 Baseball's Greatest Hits

This Macintosh CD-ROM disc (not to be confused with the Rhino Records audio CD of the same name) comes from Voyager, maker of some of the best produced multimedia CDs around. Its main pur-

The Games Predict the 1994 Season

Every baseball simulation claims to have the most accurate and comprehensive statistics. But baseball fans know that loud chatter is meaningless unless you can back it up on the field. That's why we challenged the publishers of baseball simulations to use their products to predict the results of the 1994 season, before the first pitch was thrown.

Three companies had enough confidence in their games to accept the challenge. Strategic Simulations ran the numbers on Tony La Russa Baseball II (our World Series winner), Microleague tried it with Baseball 4 (which finished number 19 in our overall rankings), and Lance Haffner Games played along with Lance Haffner Baseball (a simple text-only program that didn't make our Top 20 lineup).

Each game used its own unique blend of statistical information to play out the full 1994 season, projecting standings, playoff teams, league champions, and the winner of the World Series.

The results are not too surprising: Atlanta, St. Louis, Toronto, and the Chicago White Sox showed up in the playoffs for all three programs. The San Francisco, Montreal, and Baltimore clubs made appearances in two sets of predictions, while Philadelphia, Houston, California, Texas, and Seattle each impressed at least one program. In the end, Tony La Russa had Atlanta winning the Series, Microleague picked Montreal, and Lance Haffner went with St. Louis.

No matter what happens, all three of these courageous programs deserve a break. Last-minute trades, free-agent signings, and major injuries could all disrupt these projections.

Only time will tell which program, if any, had the inside track. Don't be too quick to judge though; baseball is notorious for August collapses and September stretch runs. When the season's over, we'll take a look back and see how each program did.

—Wayne Kawamoto

Tony La Russa Baseball II

NATIONAL LEAGUE

NL East	W	L	Pct.	GB
Atlanta	97	65	.599	–
xPhiladelphia	96	66	.583	1
Montreal	86	76	.531	11
New York	80	82	.494	17
Pittsburgh	72	90	.444	25

NL Central	W	L	Pct.	GB
St. Louis	86	74	.543	–
Houston	87	75	.537	2
Chicago	84	78	.519	4
Cincinnati	71	91	.438	17
Florida	67	95	.414	21

NL West	W	L	Pct.	GB
San Francisco	96	66	.593	–
Los Angeles	79	83	.488	17
Colorado	70	92	.432	4
San Diego	61	101	.377	35

NL Playoffs

Atlanta/St. Louis	Atlanta wins 3-1
San Francisco/Philadelphia	San Francisco wins 3-2

NL Championship

Atlanta/San Francisco	Atlanta wins 4-3

AMERICAN LEAGUE

AL East	W	L	Pct.	GB
Toronto	93	69	.574	–
xBaltimore	91	71	.562	2
New York	90	72	.558	3
Boston	86	76	.531	7
Detroit	82	80	.506	11

AL Central	W	L	Pct.	GB
Chicago	92	70	.567	–
Kansas City	80	82	.494	12
Cleveland	80	82	.494	12
Milwaukee	69	93	.426	23
Minnesota	64	98	.395	28

AL West	W	L	Pct.	GB
Texas	84	78	.519	–
Seattle	78	86	.469	8
California	75	87	.483	9
Oakland	72	90	.444	12

AL Playoffs

Chicago/Baltimore	Chicago wins 3-2
Toronto/Texas	Toronto wins 3-1

AL Championship

Chicago/Toronto	Chicago wins 4-2

World Series

Chicago/Atlanta	Atlanta wins 4-3

Microleague Baseball 4

NATIONAL LEAGUE

NL East	W	L	Pct.	GB
Atlanta	98	64	.605	–
xMontreal	89	73	.549	9
Philadelphia	86	74	.543	10
Pittsburgh	79	83	.488	19
New York	72	90	.444	26

NL Central	W	L	Pct.	GB
St. Louis	90	72	.556	–
Chicago	84	78	.519	6
Houston	80	82	.494	10
Cincinnati	78	84	.481	12
Florida	65	97	.401	25

NL West	W	L	Pct.	GB
San Francisco	89	73	.549	–
Los Angeles	75	87	.463	14
Colorado	74	88	.457	15
San Diego	73	89	.451	16

NL Playoffs

Atlanta/Montreal	Montreal wins 3-1
San Francisco/St. Louis	St. Louis wins 3-1

NL Championship

Montreal/St. Louis	Montreal wins 4-2

AMERICAN LEAGUE

AL East	W	L	Pct.	GB
Toronto	91	71	.582	–
New York	85	77	.525	6
Boston	78	84	.481	13
Detroit	77	85	.475	14
Baltimore	75	87	.463	16

AL Central	W	L	Pct.	GB
Chicago	92	70	.567	–
xKansas City	86	76	.531	6
Cleveland	81	81	.500	11
Minnesota	80	82	.494	12
Milwaukee	69	93	.379	23

AL West	W	L	Pct.	GB
Texas	86	76	531	–
Seattle	84	78	.519	2
California	78	88	489	10
Oakland	74	86	.457	12

AL Playoffs

Texas/Toronto	Toronto wins 3-1
Kansas City/Chicago	Chicago wins 3-0

AL Championship

Chicago/Toronto	Toronto wins 4-2

World Series

Toronto/Montreal	Montreal wins 4-2

Lance Haffner—Full Count Electronic Baseball

NATIONAL LEAGUE

NL East	W	L	Pct.	GB
Montreal	93	69	.574	–
xAtlanta	91	71	662	2
Philadelphia	86	76	.543	7
Pittsburgh	84	78	.518	9
New York	72	90	.444	21

NL Central	W	L	Pct.	GB
St. Louis	88	74	.543	–
Houston	85	77	.626	3
Cincinnati	80	82	.494	8
Chicago	79	83	.488	9
Florida	74	48	.457	14

NL West	W	L	Pct.	GB
San Francisco	90	72	.555	–
Los Angeles	78	84	.481	12
Colorado	70	92	.432	20
San Diego	64	98	.395	26

NL Playoffs

Montreal/St. Louis	St. Louis wins 3-2
Atlanta/San Francisco	Atlanta wins 3-2

NL Championship

Atlanta/St. Louis	Atlanta wins 4-1

AMERICAN LEAGUE

AL East	W	L	Pct.	GB
Toronto	91	71	.568	–
xBoston	91	71	582	–
Baltimore	89	73	.549	2.5
Detroit	79	83	.486	12.5
New York	78	86	.489	15

AL Central	W	L	Pct.	GB
Chicago	95	67	.588	–
Milwaukee	84	78	.518	11
Kansas City	80	82	.494	15
Minnesota	80	82	.494	15
Cleveland	60	102	.370	35

AL West	W	L	Pct.	GB
California	87	75	537	–
Seattle	84	78	.518	3
Texas	72	90	444	15
Oakland	86	96	.407	21

AL Playoffs (Toronto wins 1-game playoff with Boston)

Chicago/Boston	Chicago wins 3-1
California/Toronto	California wins 3-2

AL Championship

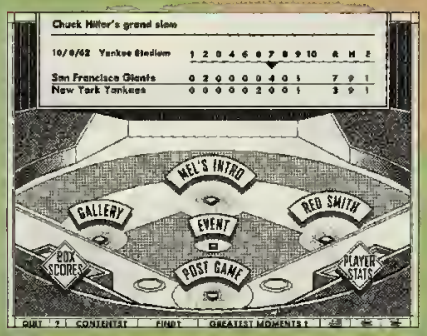
Chicago/California	California wins 4-3

World Series

St. Louis/California	St. Louis wins 4-3

x = wild card

pose is to recap great moments in baseball history. It does, using nicely digitized QuickTime video, high-quality audio, box scores, player statistics, write-ups from Red



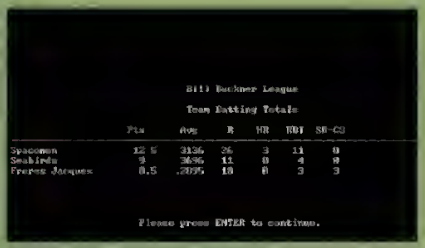
Baseball's Greatest Hits lets you relive climatic moments in sports history.

Smith, and narration by announcer Mel "How about that!?" Allen.

The video segments—Aaron's 715th homer, Bobby Thompson's shot—are great. I wish there were more. Most of the events—the World Series earthquake, Bill Buckner's error, Roseanne Arnold's national anthem—are audio only. And the photo gallery doesn't have the rare portraits found in the Total Baseball CD, just stock black-and-white poses from media guides. (The Voyager Company; 914-561-5500; CD for Mac, $59.95)

17 TNA StatsMaster

Every fantasy league must decide whether to hire an outside bureau to prepare its weekly standings reports or to handle this task in house. I prefer to pay somebody else



TNA StatsMaster makes running your own fantasy league a breeze.

to do it. But do-it-yourself Rotisserie programs allow control freaks more reporting flexibility (and frequency).

League-commissioner software generally consists of homebrewed programs advertised in the back of fans' publications, and lack of dedicated support staffs makes ease of use paramount. That's where StatsMaster beats its handful of equally obscure rivals hands down. It's totally menu driven, sacrificing unlimited reporting options in favor of clarity. By being able to download predigested stat files from Computer Sports World (which conveniently markets StatsMaster), it offers a single-vendor solution. (Computer Sports World; 800-321-5562; DOS/Mac, $110 for software, $150 per season for download service)

18 Diamond Collection: Hardball III

Hardball III does pretty much what Tony La Russa does, but it falls short on statistics. Once an arcade-only game that used phony

Hardball III pitches great graphics, but doesn't track player stats.

players like "Big Al Miller," it now uses real player stats. As with Tony II, you can set up a game and enjoy just watching it (the animation is in some ways superior to Tony's, and Al Michaels does the play by play). But Hardball III (the Diamond Collection bundles the game, player data, and ballparks) has no utility to compile player stats through a simulated season. For some reason, simulation just isn't as fun when you're not keeping track. (Accolade; 800-245-7744; DOS, $69.95)

19 Microleague Baseball 4

Microleague was the first computer baseball game sold in stores, in the prehistoric mid-1980s. Back then, PC retailers would run the game just to show its graphics on their then-leading-edge CGA monitors. But CGA has long been surpassed and so has Microleague Baseball. The animation still merely illustrates

Microleague Baseball 4 can use updated stats—and will get a face-lift next season.

outcomes that could be described faster with text, and it's not intuitive to use.

Still, it does have one ultracool feature: it can download weekly files from USA Today Sports Center, letting you simulate games based on players' very latest stats. That's one hit plus a couple sacrifices—good enough to score occasionally. Microleague Baseball 5 is due out in time for the 1995 season. Expect to see the new version with TV-style animated graphics and an improved statistical engine. (Microleague Interactive Software; 800-334-6572; DOS, $29.95)

20 Lights Out Sports Fans Major League Baseball Screen Saver

Who needs flying toasters when you can watch major league baseball's only licensed Windows screen saver? Lights Out offers ten different onscreen "game plans," including a floating blimp of your favorite team insignia and a "game" between team logos you choose (based loosely on real statistics). Not all the

This is just one of ten screen savers in Lights Out Sports Fans Screen Saver.

choices seem to fulfill the original purpose of a screen saver—preventing monitor burn-in by changing every pixel periodically. But, as between-the-action filler, it's better than beer commercials. (Quadrangle Software; 800-253-8397; Windows/Mac, $55)

33

Now Playing at the ANYWHERE Arcade

NOTEBOOK COMPUTERS AND THE RIGHT GAMES AND PERIPHERALS LET YOU HAVE FUN WHEREVER YOU GO.

Crushed in coach. Stuck in study hall. Waiting for the 9:09 to Greenwich. Time to whip out the notebook and bang out some work, right?

Wrong! It's time to play some games. Not just any games, but the select few that actually play well on your notebook PC or PowerBook. Games that may not have been explicitly designed to cope with small screens, missing mice, and AWOL audio but still give you as many grins away from home as in it.

Obviously, you don't need to be traveling to play on a portable. With lightweight computers becoming almost as capable as desktop machines, millions of people are relying on notebooks or laptops as their only computers. If that's your situation, or if you're a fanatic who simply needs full gaming power at all times, portable gaming is a natural. All you need is some great multimedia gaming gear that'll get you the same stereo sound, joystick control, and CD-ROM compatibility your home PC provides.

To make sure your portable gaming experiences go more smoothly than your plane flights, you need to grab the right games, learn some tricks, and assemble the ideal system. So pack your bags, grab your boarding pass, and let the games begin.

ILLUSTRATION BY DAVID PETERS

By Gregg Keizer

Hoyle Classic Card Games gives you an eight-pack of traditional games, including Hearts.

Road Games

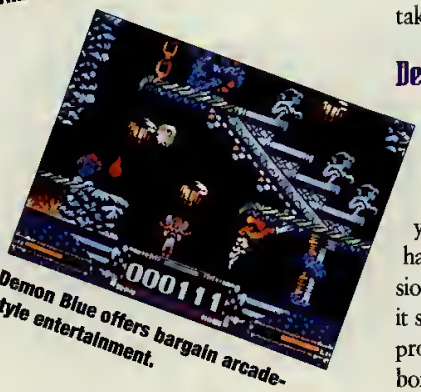
Today's portables may be powerful, but only the fabulously rich or well connected can afford one with the oomph of a high-end desktop computer. In addition to doing without multimedia components, you must make other sacrifices that affect the games you play.

All notebooks, for instance, use liquid-crystal-display (LCD) screens that aren't as quick to display graphics as traditional cathode-ray-tube (CRT) desktop monitors. Most notebooks also lack the local-bus video connections, graphics accelerators, and high-end video boards that speed displays on newer desktop models. Color screens, especially high-quality active-matrix models, are still expensive rarities on portable machines. And despite ever-improving technology, most portables sport smaller hard drives and less memory than their stationary counterparts, many lack built-in pointing devices, only a very few have internal CD-ROM drives, and virtually all but PowerBooks are mute.

Don't give up. If you're careful, you can match games and game types to your particular portable's strengths and skills. It just takes a little planning.

Villa Crespo's series of mini arcade, puzzle, and card games is great for a long flight.

Windows' own Solitaire is free and fun. What more do you want?



Demon Blue offers bargain arcade-style entertainment.

Backgammon, by George! works well on all kinds of screens.

Deal 'Em. Card games rank near the top of the portable play list. They work great on notebooks because they don't depend on system speed or fast graphics. If your machine runs Windows, you already have Microsoft's solid if unspectacular version of **Solitaire** on your computer. Because it ships with Windows, this simple game has probably wasted more time and helped more bored travelers endure long flights than any other piece of software.

Eventually, though, solitaire gets old. Then it's time for a card game with more guts and options. If your machine has the hard disk space—11MB on the Mac, for instance—Sierra's **Hoyle Classic Card Games** is a good pick. The animated opponents are largely unnecessary overhead, but the game selection —from bridge and euchre to gin rummy and cribbage—more than compensates. There are versions available that will run happily on either Macintosh or PC portables. (Sierra; 800-743-7725; DOS/Windows/Mac, $49.95)

For adult-oriented fun, check out **More Vegas Games Entertainment Pack** for Windows, which includes poker, blackjack, and baccarat as well as craps and horse racing. (New World Computing; 800-325-8898; Windows, $29.95)

Bargain hunters will like Villa Crespo's Coffee Break series of mini arcade, puzzle, and card games. Titles include **Dr. Thorp's Mini Blackjack**, **Ruckus Poker**, **Dr. Wong's Jacks+ Video Poker**, and the arcade game **Demon Blue**. (Villa Crespo Software; 800-521-3963; DOS, $12.95 each)

Checkmate. Like card games, digital conversions of board games generally don't ask much from the computer, making them another excellent choice for on-the-road entertainment. Chess, for instance, is a natural on a notebook. Check out **Chessmaster 3000**, one of the few DOS programs that doesn't demand more than 640K and runs in 16-color or grayscale VGA. It's tough to work without a mouse, but it's not impossible. (The Software Toolworks; 800-234-3088; DOS, $49.95)

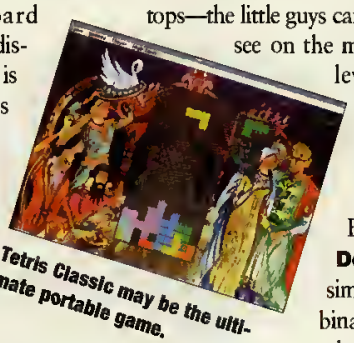
Dr. Thorp's Mini Blackjack is a winning bet.

For faster action, try **Backgammon, by George!** It requires Windows but runs well on monochrome displays. You move pieces with the mouse, so you need some sott of pointing device. You can play at any of three competitive levels and do all the cool backgammon stuff, like rolling dice and doubling. (Graphic Software Lab; 714-708-3000; Windows, $39.95) Look around on bulletin boards and online services—you may find one of the many shareware and freeware backgammon games on the market. Many of them are quite good.

Pocket Puzzlers. You could kill time with a computer crossword, but why bother? That's why they put those things in the back of the in-flight magazine. Instead, pull down the table tray and start punching keys with a more active puzzle game. Spectrum HoloByte's **Tetris**, of course, is terrific on any machine, portables included. The Classic version is the most appropriate for portables. (Spectrum HoloByte; 800-695-4263; DOS/Windows, $44.95)

Another good pick, especially if you have a portable with a 386 or 486 processor, is

The Incredible Machine, in which you assemble strange contraptions ftom a box filled with levers, conveyor belts, and floating balloons. There's more onscreen movement than with the card and board games, but even on an LCD display, the game looks good. As is often the case where portables are concerned, the original version of the game makes a better choice than the sequel. **The Even More Incredible Machine** adds unneeded animated overhead. (Sierra; 800-326-6654; DOS/Mac, $49.95)



Tetris Classic may be the ultimate portable game.

Then there's the **Lemmings** series. These adorable critters don't move very fast, so they don't need a lot of processor power to do their thing. Even better, rescuing them becomes such an absorbing task that your flight will be over before you know it. The original Lemmings is the smallest and most appropriate for laptops—the little guys can be very hard to see on the more complicated levels. (Psygnosis; 800-438-7794; DOS, $29.95; Mac, $49.95)

The Incredible Machine's limited animation gives it a special charm on notebook computers.

On the PowerBook, check out **Spin Doctor**, a deceptively simple yet addictive combination of arcade action and moving-maze puzzle solving. It looks great in color, but you might need to squint a bit on a black-and-white screen. (Callisto; 800-544-4511; Mac, $59.95)

The Lemmings series remains just as cute on your laptop.

If you're looking for an arcade-oriented experience, you'll love the space arcade game **Crystal Crazy**. This demented follow-up to the original **Crystal Quest** makes a terrific time killer. Just be prepared to annoy your seatmate with the odd noises emanating from the PowerBook speaker. (Casady & Greene; 800-359-4920; Mac, $49.95)

Spin Doctor combines puzzle fun and arcade action.

Simulate a Good Time. Most simulations aren't a good fit for portables because they consume too much disk space, demand color screens, or slow to a crawl on less than top-rank processors. A couple, though, make for good away-from-home pretend. Maxis's **SimCity Classic** (not the newer and beefier SimCity 2000) is one. You create, then run an urban sprawl as if you were a combination mayor and city planner. You need a mouse or some other pointing device, but it runs acceptably in monochrome. (Maxis; 800-336-2947; DOS/Windows/Mac, $39.95)

SimCity Classic is perfect for all kinds of portables.

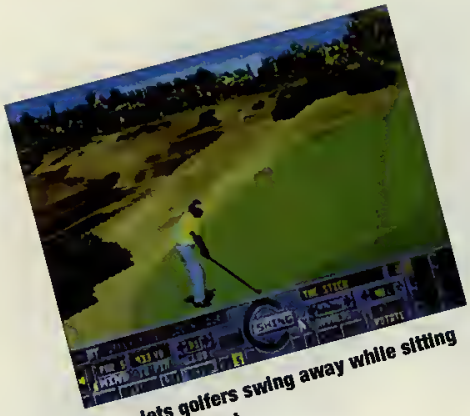
Another good portable sim is **Sid Meier's Civilization**, an exploratory game that has you keeping the barbarians away from the gates long enough to get your culture literate. This DOS game requires a measly 640K of RAM, though the pieces are sometimes hard to see on dim portable screens. (MicroProse; 800-879-7529; DOS/Mac, $59.95, Windows, $69.95)

Play on-the-road Civilization for its clear displays and its low memory needs.

Sports fans might want to stick with the low-powered **Links**, the original version of the hot golfing simulation. Later versions such as **Links 386** boast improved

Top 10 Portable Games

1. **Tetris Classic.** Addictive, short rounds.
2. **Crystal Crazy.** An abstract shoot-'em-up that belongs on the hard disk of any PowerBook.
3. **More Vegas Games.** More fun than betting on the plane's departure time.
4. **Solitaire.** It's free with Windows, and when you play with Las Vegas rules, it's no walkover.
5. **SimCity Classic.** A perennial favorite that runs on most portables.
6. **Lemmings.** Relentless action, though the tiny lemmings can be a bit tough to see on an LCD screen.
7. **The ImagiNation Network.** Online games that won't stress out your notebook and don't need more than a 2,400-bps modem.
8. **Empire Deluxe.** A great game of world conquest that runs in DOS, needs just 640K of RAM, and doesn't require a mouse.
9. **Links.** Drop down to this older version of the best golf sim around when you hit for the pin on your notebook.
10. **The Coffee Break series.** Cheap games small enough to fit on a notebook's RAM disk. My favorite is Dr. Wong's Jacks + Video Poker.



Links lets golfers swing away while sitting in an airline seat.

graphics, but you get the same great game play with less overhead in the original. (Access Software; 800-800-4880; DOS, $59.95)

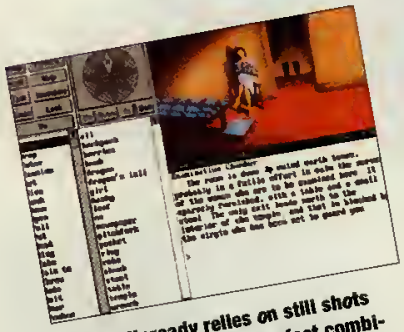
Whatever you do, though, skip flight simulators when you're away from home. Not only do they demand more CPU and graphics power than most notebooks can muster, but you don't want to remind yourself of airplane disasters when you're 30,000 feet above the runway.

War at 30,000 Feet. When you want to battle someone other than the airline ticket clerk, boot up a war game. Though some of the newest require gobs of hard disk space and a pointing peripheral, many run fine on a portable. SSI's line stands out for portables—the company still publishes war games that work with DOS and very little memory. **Clash of Steel** and **War in Russia**, a pair of World War II war games, are good picks. (Strategic Simulations; 408-737-6800; DOS, $69.95–$79.95)

Clash of Steel's large pieces and clear maps make it one of the better war games on a notebook's small screen.

Empire Deluxe is a large-scale war simulator that works well even on small laptops. It fits in 640K of RAM and doesn't demand a mouse. (New World Computing; 800-325-8898; DOS/Windows/Mac, $59.95)

Roles to Savor. Top-of-the-line role-playing games take up too much hard disk space for notebooks, but the more petite graphic adventures make good traveling entertainment. Text-heavy games such as Legend's **Eric the Unready**, for instance, don't spend precious processing power moving characters onscreen. (Legend; 800-245-7744; DOS, $59.95)



Eric the Unready relies on still shots and text commands, a perfect combination for role playing on the road.

Sierra's adventure lines, such as **Leisure Suit Larry**, **Police Quest**, and **Space Quest** are also good picks for portables, since they use minimal animation. Go for their earlier episodes, which take up less disk space. (Sierra; 800-326-6654; DOS, $29.95–$69.95)

Leisure Suit Larry 2 makes for good portable gaming since it's not as large nor graphics intensive as later versions.

The Notebook Connection.

Finally, if your notebook has a modem—and it should—check out the **ImagiNation Network**. This online gaming service offers plenty of games you can play from just about anywhere. Even if you're all alone in a strange city, subscribing to INN means that you can still have fun with your online buddies. (ImagiNation; 800-743-7721; $12.95 per month, plus options)

The Imagination Network's games are fine, but the real fun comes from connecting to other players, no matter where you are.

The Hardware Facts

To make portable entertainment pleasurable, you need more than the right game. Unless you're living in luxury with a high-end notebook, you need to modify the hardware and screw around with the software.

RAMming Speed. If you want to play through the entire flight, cut down on hard disk access and conserve your batteries. Your best bet is to set up a RAM disk on your notebook. This virtual drive disappears when you turn off the machine, but it doesn't use nearly as much power as a physical device.

To create a RAM disk on a PC portable, you modify its AUTOEXEC.BAT file. Insert the line Device=*path* RAMDRIVE.SYS *size in bytes/e*—where *path* is the drive letter and *size in bytes* is a number such as 1024 (1MB), 2048 (2MB) or however much RAM you can spare. The biggest downside to a RAM disk is that—unless the computer has a prodigious amount of RAM—only smallish games will fit in it.

Squeeze It. Compression utilities can turn a 60MB hard drive into one that can store as much as 100MB of files. Stacker, which is available for both the PC and Macintosh, is one of the best. (Stac Electronics; 800-522-7822; DOS/Mac, $149)

With a compressed hard disk, you can hold more or larger games and still have room for those boring business applications. Unfortunately, some games don't run from a compressed drive, or if they do, they require special installation. To see if your favorite game will have any problems, check with the technical-support desk.

Power Down. Most portable PCs and all PowerBooks have power-management options that can seriously stretch battery life. The most useful choice for game players switches off the hard drive when it's not accessing data. Set your notebook to power down the drive as quickly as possible. It takes a moment for the drive to come back up to speed the next time

Portable Multimedia

Just because you use a notebook instead of a desktop computer doesn't mean you have to sacrifice the multimedia enhancements that make computing fun. Sure, it'll cost you some money and convenience but you can turn your laptop into a multimedia monster. Just be ready for a lot of external parts, more stuff to carry, and a Rube Goldberg–like profile.

Port-Able Sound Plus works with DOS and Windows.

Sound is the most obvious absentee in PC notebooks. The Apple PowerBook has built-in sound capability and even a semidecent speaker. Most PC portables have nothing, and no room for adding anything internally.

Fortunately, several external audio peripherals can connect to your portable's parallel port. Media Vision's AudioPort is compact and it works great within Windows. (Media Vision; 800-845-5870; PC, $199)

DSP Solutions' Port-Able Sound Plus is bigger—it comes in two sections, with a separate speaker unit—but its Sound Blaster–compatible audio works with almost all DOS games. (DSP Solutions; 916-621-1787; PC, $199)

Both solutions run on batteries, so they can go anywhere your laptop goes. And you can connect both to headphones for private listening or to a set of small, self-amplified speakers for rockin' at home or in the hotel room.

Mice and keyboards suffice for some people, but hard-core gamers can't live without a joystick. While PC notebooks generally don't have game ports, there are special adapters that let you use the notebook's other external connections. The Notebook Gameport (Colorado Spectrum; 800-238-5983; PC, $54.95) connects to the serial port, while the Parallel Game Port (Genovation; 800-822-4333; PC, $49.95) hooks up to the parallel port. Either way, you just jack in your joystick and go. Any of the small, light Mach models from CH Products is a good joystick pick for portable use. (CH Products; 800-624-5804; Mach 3, PC, $49.95)

Toshiba T6600C/CD is a true multimedia laptop.

So far so good for floppy disk–based games, but today's best titles are coming out on CD-ROM. Don't worry: CD-ROM can go mobile, too. NEC's MultiSpin 38, a 2.2-pound double-speed CD-ROM player, is small enough to tuck into the briefcase. Like almost anything portable, the MultiSpin 38 is pricey: more than $600 with battery and the required parallel port–to-SCSI interface kit. Of course, now that NEC has introduced its 3X line of triple speed players, look for the MultiSpin 38 to fall in price and hit the discount catalogs. (NEC; 800-632-4636; PC, $560 including SCSI interface, plus $85 for the battery pack.)

PowerBook users can look to the PowerCD player for their CD fun. Running off four C batteries, the $499 3.1-pound PowerCD not only plays CD-ROM discs but—like the MultiSpin—doubles as an audio CD player. Its only flaw—other than the high price—is that it's a slow, single-speed player. (Apple Computer; 800-538-9696; Mac, $499)

Finally, if money's no object and your biceps are as big as Fabio's, why not pick up a complete multimedia laptop? For a mere $9,000 you can get a Toshiba T6600C/CDV, the ultimate portable PC game machine. Weighing in at a back-breaking 18-plus pounds, the 486/66 equipped 6600C/CD sports an active-matrix Super VGA color display, a huge 510MB hard disk drive, a sound card, speakers, and a CD-ROM drive. Billed as a mobile multimedia computer, it'll meet the challenge of any game that you throw at it. (Toshiba America Information Systems; 800-334-3445; $8,999)

the game requests a file, but that shouldn't be much of a problem unless you're trying to play disk-intensive games (which you shouldn't be doing on a laptop, anyway).

Fewer Colors, More Fun. If you're playing Windows or Mac games, switch to 16-color or grayscale video mode whenever possible. The fewer colors or shades of gray, the faster games generally run—an important consideration on a notebook equipped with an underpowered processor.

Keys in Command. While most games play with some sort of pointing device—a joystick or mouse, generally—almost all give you the option of sticking with the keyboard. Take note of games that don't, and leave them at home if your notebook doesn't have a trackball. At the same time, take a peek at your portable's keyboard, especially the placement and size of its arrow keys (they're vital in most games). If your machine puts them in an out-of-the-way place or reduces their size, you're in for some tough gaming.

Keep It Simple, Stupid. Some games, most notably chess titles, let you set your electronic opponent's skill level. To keep a game from bogging down, set up the digital Kasparov so that it doesn't take long to think. That'll speed up the game enough so that you can play it through on a single battery charge.

Fun on the Run

With all these caveats, tips, warnings, and instructions, you may start to think that notebook gaming isn't worth all of the hassle. Why not just spend $50 on a dedicated portable fun machine like a Nintendo GameBoy or, even better, Sega's GameGear? And even hand-held personal digital assistants such as Apple's Newton and Tandy's Zoomer are sprouting game and entertainment applications.

But you already own that notebook, and you've got to carry it along to handle all those annoying work tasks that you bought it for in the first place.

So pack up the portable, throw a couple of manila folders in the briefcase to fool the boss, pack your top ten games, and hit the street. And hit the footloose Anywhere Arcade, where fun happens anyplace and anytime you can steal a moment for what's really important.

IN CYBERSTRIKE, ALL BEGINNERS WILL BE TREATED FAIRLY.

AND THEN DESTROYED.

Beaten all the boxed games? Done the arcades to death? Try CyberStrike,™ the wild new multi-player game on GEnie where you hop into a two-legged CyberPod and battle it out against other real live humans for control of a virtual reality city. The action's fast and furious. But even if you're new in town, you won't get blown to Kingdom Come. Well, not right away at least. In fact, CyberStrike is so easy to learn, you might actually live long enough to waste someone else first. And best of all, it only costs three bucks an hour.* So strap yourself inside a Pod and come out shooting. You've got nothing to lose. Except your life.

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SIGN UP NOW: 1. Set your modem for half duplex (local echo) at 300, 1200 or 2400 baud. 2. Dial toll free 1-800-638-8369. Upon connection, enter HHH 3. At the U # = prompt, enter JOINGENIE then press RETURN 4. At the key code prompt enter AQD423 5. Have a major credit card or your checking account number ready. For more information in the U.S. or Canada, call 1-800-638-9636.

*Here's the fine print. GEnie multi-player games and support services are $3.00 an hour in non-prime time: 6 p.m. to 8 a.m. local time Mon.-Fri., all day Sat. and Sun. and selected holidays. There's also an $8.95 monthly subscription fee. Each month, you'll get credit for up to four hours of non-prime time usage. Any surcharges incurred apply to all hourly usage, including your first four hours.

SIMUTRONICS

CD-i:

It WAS GOING TO BE THE NEXT VCR. It was going to "evolutionize" home entertainment. It was supposed to sell over a million units in no time.

But today, nearly three years after its incredibly hyped 1991 release, Philips's CD-Interactive set-top player is still struggling for respect, much less dominance. In the midst of all the hooplah surrounding competitors like the Sega CD box and Panasonic's 3DO machine, many critics have already pronounced the CD-i format dead.

Yet over the last few months, something strange has been happening over at the CD-i camp: Developers have been building some extremely cool, really innovative titles that make CD-i worth a long, hard look. Titles that will appeal to everyone in your family—not just the 14-year-old boys who want to blast aliens and stomp mutants.

Plus, the price has gone down—way down—from a high of $800 at its release to today's street price of less than $400 for a baseline unit.

And now you can get an optional $250 Digital Video add-on that lets you play CD-i based movies, music videos, and even games and other titles with full-motion video. (For more on digital video, see "Full-Motion CD-i," page 67.)

On the following pages, we'll show you more than 15 of our favorite CD-i titles, out of more than 150 on the market. After all, it's titles—not technology—that make a box worth buying. Check them out and decide for yourself.

Dead or Alive?

By Gina Smith and Alex Uttermann

General Interest

A Great Day At the Races

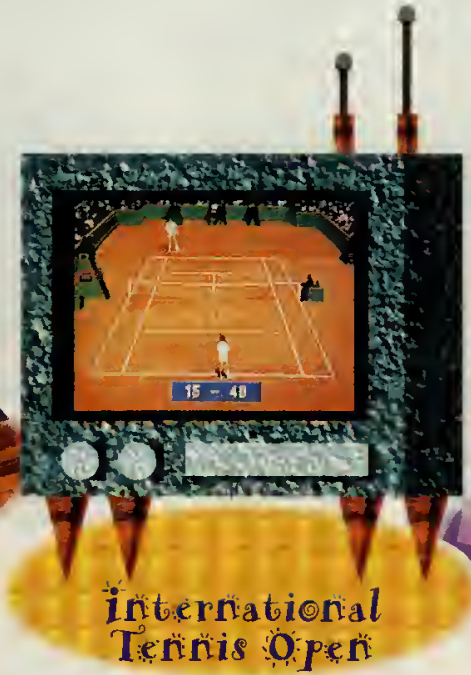
Want to try your hand at hitting the Trifecta? In this animated thoroughbred racing simulation featuring (can you believe it?) Mickey Rooney, you pore through the Racing Form, get advice from experts, place bets, and cheer on your ponies. If you've got a hankering for the finer points of trackside gambling—or if you're just to afraid to bet real money—this one's for you.

Name that Tune

In the new interactive CD-i version of this game-show classic, you and your friends try to guess the titles of more than 600 songs, dating from the fifties to the nineties. The one who does it after hearing the fewest notes wins. Host Bob Goen lets you pick from more than 160 categories.

TR-i No World Order

Now, this is what we call interactive rock 'n' roll! Todd Rundgren's No World Order lets you create your own, customized versions of the music. You can change the mix, mood, tempo, even the sequence. Though the interface leaves something to be desired, this 8-month-old title is clearly a revolutionary effort worth collecting—and the first in what will certainly be a long line of interactive rock discs to hit the market.



International Tennis Open

This one's been around awhile, but it's still the best tennis-simulation game available for any platform. Choose your location and court surface, carefully set swing style, speed, and power for every shot, and you might actually play against an array of top-ranked, and well-rendered, competitors. The realistic settings conjure up images of Wimbledon, and the French, Australian, and U.S. Opens, with multilingual announcers making snide comments on your game. Even real tennis pros will have a good time with this title.

Kether

Fly a spaceship, save a princess. We've all seen games like this before, and some of us are suckers for them. If you fit that description, definitely check out Kether, a new space-simulation game that will absorb your attention for hours. One of the strongest CD-i titles available that doesn't require a digital video cartridge, Kether combines the best of the action, adventure, and puzzle game genres.

ILLUSTRATIONS BY GORDON STUDER

Max Magic

The ultimate choice for the would-be magician, this new disc teaches you how to perform more than a dozen real magic tricks. Think of it as an electronic magic kit: Either watch Max perform tricks in his Magic Mansion, or use him as your assistant while you perform the card tricks that he teaches you.

Jack Sprite vs. The Crimson Ghost

This intriguing new title almost defies description: It combines an original serial film from the 1920s with a quirky, animated character called Jack Sprite. While you watch the old black-and-white movies, Sprite intrudes to help move the action along. For instance, if a character is trying to balance along a wire, Sprite pops up. You're then plunged into a more familiar gaming environment where you help Sprite manuever his way across the wire.

Voyeur

More like an odd movie than a game, Voyeur lets you spy on the nefarious activities of the political world—specifically, on wealthy industrialist and Presidential candidate Reed Hawke, played by actor and "I Spy" graduate Robert Culp. By videotaping the various steamy scenes of lust and revenge going on in his home, you try to expose Hawke and still remain alive. This brand-new title isn't for children—its suggestive scenes and strong language would definitely earn it an PG-13 rating in the movie biz.

Art of the Czars

Enjoy the beauty of St. Petersburg without braving the Russian winter—or Aeroflot—in this cross between a documentary and a coffee-table book. Take a firsthand walking tour of the historic city and check out landmarks and monuments, or go directly to the Hermitage and enjoy one of the finest art collections in the world. Complete with rich images from DaVinci, Matisse, and Titian, this new title also features music of Tchaikovsky and Rachmaninoff.

Time/Life Astrology

People in our office who claim to know better couldn't pull themselves away from this fun, addictive new title. You can plot your horoscope in minute detail—right down to planet positions at the precise moment you were born—and figure out how you get along with friends and lovers. It also gives you daily horoscopes, and a 12-minute video explains everything you ever wanted to know about how astrologers practice their science.

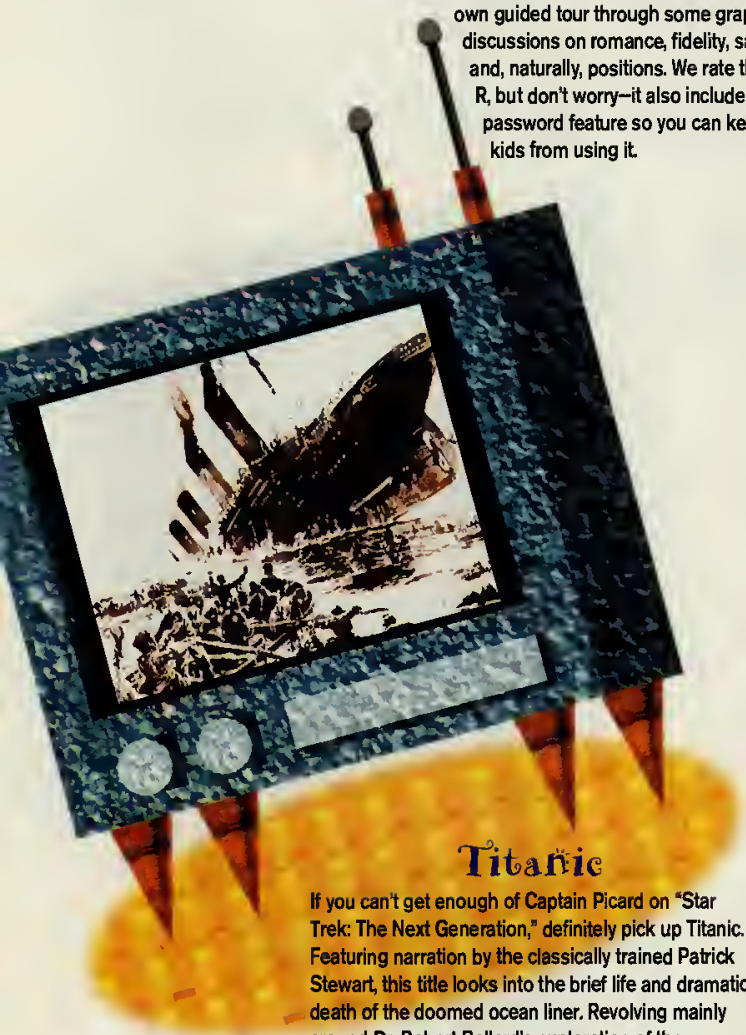
Digital Video Titles

The Joy of Sex

Hey, it was a best-selling book for a reason. And now, on CD-i with videos and animations, this comprehensive guide to the art of love has gone interactive. Use its interface to personalize your own guided tour through some graphic discussions on romance, fidelity, safe sex, and, naturally, positions. We rate this one R, but don't worry—it also includes a password feature so you can keep your kids from using it.

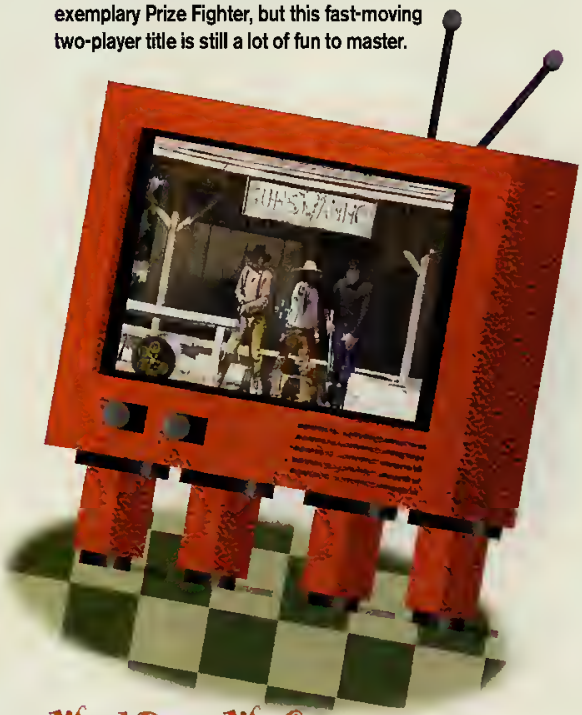
Caesar's World of Boxing

An aspiring pugilist has to be tough, or lucky, to fight at a big-time venue like Caesar's Palace, but this full-motion video title gives you your chance. In fact, choosing the right promoters, managers, and trainers for your entourage may be the toughest part—without the right combo of advisors in your corner, you'll end up on the canvas out cold. The fighting graphics can't match Sega CD's exemplary Prize Fighter, but this fast-moving two-player title is still a lot of fun to master.



Titanic

If you can't get enough of Captain Picard on "Star Trek: The Next Generation," definitely pick up Titanic. Featuring narration by the classically trained Patrick Stewart, this title looks into the brief life and dramatic death of the doomed ocean liner. Revolving mainly around Dr. Robert Ballard's exploration of the sunken wreck, it includes 2,500 images, period music, and, for viewers with the Digital Video cartridge, full-screen, full-motion animation.



MadDog McCree

Equipped with realistic full-motion, full-screen video, Mad Dog finally lives up to its promise of letting you wear the holster in a classic Western shoot-'em-up. Game play is simplistic but tightly focused—blast any bad guy who gets in front of your cross hair, and you win the day.

Playboy's Complete Massage

As if you didn't get the picture from the name alone, the box description promises a provocative, "hands-on" approach to intimacy and ecstasy. And that's exactly what you get. Velvety-voiced narrators gloss over the details to explain basic massage styles while nude male and female models demonstrate various, uh, techniques. Straddling an oil-soaked fence between R and X, this sensuous adult title is appropriate for couples.

Litil Divil

Search for the Mystic Pizza of Plenty in this whimsical, heavily animated new adventure game. In Litil Divil, you guide the lead demon, called Mutt, through the Labyrinth of Chaos, collect artifacts, try to save the other desperate divils, and, above all, avoid the Entity. This evil being is trying to send Mutt to the torture chamber, and it's up to you to save Mutt's hide.

The 7th Guest

In the new CD-i version of this PC and Mac best-seller, you solve puzzles and uncover the frightening events going on in Henry Stauf's creepy mansion. If you're clever, you may be able to save the people trapped there. It's packed with lots of video and live action, and the late Mr. Stauf's strangeness is even more horrifying on a TV screen.

Microcosm

A stunning 3-D game with nonstop action, this new title is a high-tech business thriller. On the planet Bodor, Cybertech is a powerful conglomerate struggling with rival Axiom for control of the planet's commerce. It would be a fair fight, except that Axiom is has injected a tiny, deadly robot into the body of Korsby, Cybertech's chairman. Your job, of course, is to get it out.

CD-i FOR KIDS

Hotel Mario

Mario moves from Nintendo to CD-i in this romping, stomping adventure through the Mushroom Kingdom. As usual, your job is to help brothers Mario and Luigi rescue the Princess Toadstool—this time from from the evil clutches of Bowser, the King of the Koopaling Clan. Only you can help Mario and his buddies take back the hotels and win the return of the beautiful princess. This title also features an original CD soundtrack and all the animation you expect from the Mario clan.

Little Monster At School

If your kids like Brøderbund's Living Books series of interactive storybooks on the PC and Mac, they'll get a kick out of Little Monster at School. The interactive version of Mercer Mayer's engaging children's book lets kids get animated action by clicking on most objects and characters onscreen. They can sing along with its original score and even learn some table manners in the bargain. Highly creative, this CD-i disc is a great example of kids' edutainment.

Berenstain Bears On Their Own...

You remember the popular series of Berenstain books from when you were a kid, and now your kids can experience the family of bears on this award-winning CD-i title. Containing an animated story complete with songs and games, kids learn lessons in safety and responsibility while trying to win a ticket to the Bear County Fair.

The Wacky World of Miniature Golf

The Country Club it ain't, but your kids will enjoy negotiating dinosaur holes and other surprises. And even if you're an adult who considers yourself the Arnold Palmer of miniature golf, expect your ball to get smashed, dashed, and bashed to smithereens, right before your eyes. Play alone, or challenge up to three of your friends in this fun new game.

Stickybear Reading

It's been around awhile, but this kids' title is too entertaining to grow old. Most appreciated in the 4 to 8 set, Stickybear helps kids improve their reading skills—in English and Spanish, no less. Stickybear and his family encourage kids to put together sentences by animating objects and characters onscreen.

Coming Soon To CD-i

The recent rash of new titles and hardware for CD-i is only the beginning. Hoping to head off the competition, Philips is spending big money helping developers cook up new enhancements for its pet platform.

Look for 1994 to bring new TV-oriented games, better-quality traditional games, and plenty of new kids' titles. New music releases will span styles from traditional to alternative, while adult titles should keep CD-i discs spinning late into the night. Finally, new hardware will make the format more affordable and easier to use.

Burn: Cycle is an arcada adventure with attituda. Look for it this fall.

Since CD-i works with your TV set, it's no surprise that Philips signed the producers of "Baywatch" to create a new interactive version of the upcoming series "Thunder in Paradise," starring Hulk Hogan, Chris Lemmon, and supermodel Carol Alt. In a cross between "Baywatch" and "Miami Vice," Hogan and Lemmon play heroes for hire in south Florida. You'll also see TV game shows "Jeopardy," "Wheel of Fortune," and "Jokers' Wild" turn up as CD-i discs later this year.

Other games on the way includa Burn: Cycle, an arcade adventure game due out this fall. This cyberpunk scenario with an attitude challenges you to remove a virus implanted in your character's head.

There will also be a CD-i version of LucasArts' Rebel Assault in the fall, which will use the digital video cartridge to deliver full-screen *Star Wars* adventure. And look for the slick Chaos Control, which sends you flying and shooting through the streets of futuristic Manhattan. Finally, Virgin Interactive Entertainment has agreed to release three of its new titles on CD-i simultaneously with the CD-ROM versions, beginning midyear with Creature Shock, a labyrinth space-adventure game using digital video.

New kids' titles on the way will include Effacer: Hangman of the 25th Century, which puts a spin on the classic word game. Skate Dude uses arcade action to teach good eating habits and health practices.

For adults, Philips is working on Dr. Ruth Westheimer's Encyclopedia of Sex, with reference information, illustrations, photos, and full-motion video. It has already shot Pandora's Poker Palace, a strip-poker game due out late in the year. The company has also struck a deal with giant erotica producer Vivid Interactive to produce a line of truly adult discs.

Music fans can look for All About US—with five videos from Peter Gabriel's 1992 US album as well as three earlier efforts and background interviews. A fully intaractive Gabriel title may also be in the works. The company is looking into a title featuring industrial rockers Nine Inch Nails as well as a line of classic rock titles.

On the hardware front, Philips recently released a new wired joypad-type controller for games, and redesigned its standard wireless controller. The new units enable two-player action.

Chaos Control promises to send you flying through futuristic Manhattan.

The new touchpad will also work with lower-priced machines on the way from Korean producers Samsung and Goldstar. The latter company's CD-I-11 player is expected to hit the U.S. market later this year for about $300—including built-in digital video. Other products under development include a multiplay carousel unit set to debut by the end of the year and a device that will turn CD-i into a smart cable box. With all the new models, Philips hopes to have an installed base of one million players by the end of the year. *—Frednic Paul*

Get the full-screen *Star Wars* advanture this fall in Rebel Assault on CD-i.

Full-Motion CD-i

Okay, so you're probably not going to get too excited about the prospect of watching *Top Gun* on TV. If you live near a video rental store—and who doesn't?—you can just pop in and rent a tape.

But the innovation behind movie CDs isn't that you can watch them, it's how. With a CD-i machine plus Philips's optional $250 Digital Video cartridge, you can chuck your clunky videocassette in favor of a pair of slinky CDs. Movie CDs have the same advantages that audio CDs enjoy: They're smaller, lighter, and last longer; they offer immediate access to any spot on the disc; and they support much better special effects like freeze-frames.

If you're tired of thosa clunky videotapes, get movia CDs like *Naked Gun* instead.

CD-i's being the first to market with the ability to play movie CDs is a real coup for Philips, as are its deals with Paramount and MGM/UA to release such blockbusters as *The Firm*, *Fatal Attraction*, *Naked* Gun, and *Apocalypse Now*, as well as *Black Rain*, and the James Bond catalog. Philips also plans to release multiple music videos, including new titles from Peter Gabriel, Pete Townshend, Bon Jovi, and Billy Ray Cyrus. Most important, though, CD-i's Digital Video lets game and multimedia developers create new interactive titles that fill your TV screen with lifelike video. Such titles as Caesar's World of Boxing, Mad Dog McCree, and The 7th Guest really show off how much full-motion video brings to the party. *—Gina Smith*

Our electronic handyman turns to his computer to help fix his sink.

how my PC

unclogged my drain

AS YOU MAY RECALL, I ended last month's Multimaniac feature with a promise to explore the wonders of full-motion video capture this month. Unfortunately, that promise turned out to be impossible to fulfill, the reason being that the dog ate my PC.

Don't believe me? Then would you believe that I was kidnapped by Martians who stocked only Betamax tapes on their spaceship, and all my equipment was set up for VHS?

Still no go? Then that leaves only the sordid truth. Despite working with two of the most popular—and supposedly easiest-to-install—full-motion video boards on the market, I was unable to get them to run on my rapidly aging 386-based computer system.

While some of the blame undoubtedly belongs to my old PC's antiquated BIOS and perhaps to a still-undiagnosed, intermittent hardware problem, the real issue is the incredibly arcane way in which expansion boards work with PCs. In fact, I want to give notice to the computer industry right here and now: Until you do away with any need for ordinary people to even think about IRQs and memory addresses, a truly mass market for multimedia PCs is just a pipe dream. It's too damn hard and too darn frustrating to get all the IRQs and I/O addresses in a PC set up correctly, and your tech support reps are just too obtuse to help.

I hear that Microsoft and Intel are getting together to work on this problem. I'll believe it when I see it. And in the meantime, I may just go out and buy a Macintosh. Apple's computers don't have this problem. Don't be surprised if I'm not alone, either. After all, if the Multimaniac can't do it, how is the average person who actually has a life going to cope?

One Man's Plumbing Is Another Man's...

Since I couldn't fix my computer, I decided to fix my house. Just as my trusty PC has developed a few quirks over the years, so has the old homestead in suburban Boston.

Unfortunately, my idea of being good with my hands stops at dialing the repairman's number correctly on the first try, so I figured I needed help. Hiring Bob Villa as a personal trainer was too expensive, so I had to enlist my PC. If it couldn't heal its own problems, maybe it could make itself useful in other ways. A quick trip to the software store turned up the Home Survival Toolkit from Books that Work, a multimedia guide to all kinds of home repairs (800-242-4546; Windows, approximately $35).

I have to tell you, though, at first I felt that perhaps there was a bit of a curse on the Home Survival Toolkit, one that caused a black cloud to descend upon the head—and home—of anyone foolish enough to install the program on their PC. For no sooner had I finished loading the third and last of its distribution disks and launched the Windows-based program—which claims to provide detailed instructions on how to fix everything from a leaky roof to a soggy basement—than things began to go wrong around the spread.

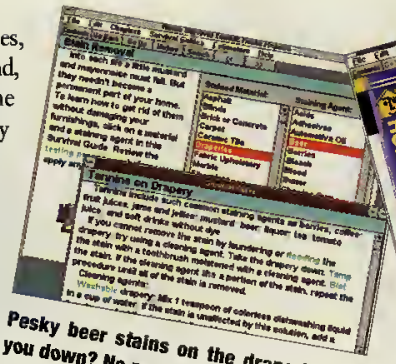
First, I began to hear strange noises from the direction of my

by Paul Bonner

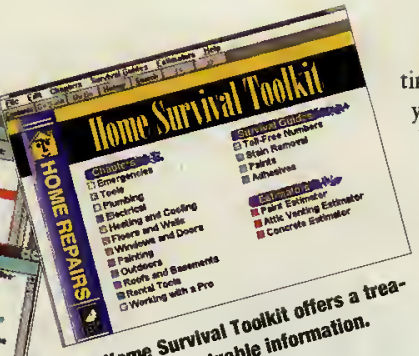
ILLUSTRATION BY ELWOOD SMITH

kitchen. There were splashes, an odd sort of gurgling sound, and then, unmistakably, the voice of my lovely wife Betsy crying out, "Help ... help."

It sounded serious. So after checking my e-mail, responding to a couple of phone messages, and backing up my hard disk, I hurried to the kitchen to see what was wrong. Betsy looked fetching standing ankle-deep in water. "The sink's backed up," she announced.



Pesky beer stains on the draperies got you down? No problem.

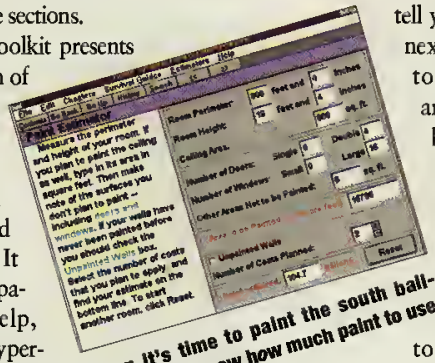


The Home Survival Toolkit offers a treasure trove of valuable information.

"Oy vey" I said, paying brief homage to the P.O.W. Fuji from "McHale's Navy." "I'll be right back." Then I hurried off to consult the Home Survival Toolkit.

It turned out that while the plumbing section of the Home Survival Toolkit provided information on such topics as clearing a jammed garbage disposal, finding a gas leak, and working with threaded pipe, it didn't have any sink-specific information. It did, however, have sections on using a plunger and an auger (aka snake) to clear clogged toilets. Plumbing is plumbing, I figured, so I decided to check out those sections.

The Home Survival Toolkit presents its information in the form of a Microsoft Viewer document. Viewer, in case you don't already know, is an enhanced form of the standard Windows Help facility. It offers all the standard capabilities of Windows Help, including color-coded hypertext links, pop-up and secondary windows, and so on. It also has several extensions that make it a natural for multimedia publishing, including the ability to replay animations and digitized sound files and a full-text search capability (rather than the indexed search offered by the standard Help facility).



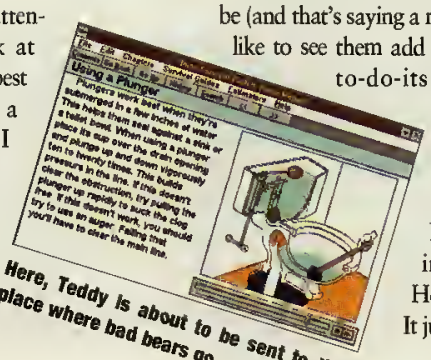
When it's time to paint the south ballroom, you'll know how much paint to use.

Thanks to Viewer, the Home Survival Toolkit isn't limited to straight text presentations. Instead, it makes frequent use of animated sequences—complete with authentic sound effects—to illustrate repair methods described in the accompanying text.

I have to admit that I was a little squeamish when I noticed that the section on using a plunger includes one such animation, complete with a see-through toilet that lets you observe everything that's happening inside the pipes. Fortunately, the clog being cleared in this case was not composed of ... well, what you'd expect it to be made of. But exactly what it represented was a little unclear. At first glance, I thought it was merely an abstract, amorphously shaped brown blob, perhaps intended to represent the Platonic ideal of a toilet clog. But closer examination revealed that the clogging material in this toilet was in fact a small brown teddy bear.

Well, I don't have to tell you what happened next. I clicked the button that starts the animation, a disembodied hand began plunging away at the toilet, and in no time at all, dear old teddy got washed away to that place where all bad teddies who swim in the toilet bowl go. This is rough stuff. I resolved to lock away the Home Survival Toolkit the next time our friends brought over their kids, lest some four-year-old be traumatized by teddy's fate.

Then I turned my attention back to the task at hand. "Plungers work best if they're submerged in a few inches of water," I read. That wouldn't be a problem. "Place its cup over the drain opening and plunge up and down vigorously ten to twenty times."



Here, Teddy is about to be sent to that place where bad bears go.

Right. "Honey, are you ready for some aerobics?" I called down to the kitchen.

Anyway, to make a long and messy story short and sweet, the plunger didn't do it but the snake did.

Both, by the way, should be considered accessory items. Neither is included in the price of the Home Survival Toolkit.

A Hex Upon Your House!

In the weeks that followed, all hell broke loose around the house. The basement flooded. The back fence collapsed. All my ducts started to leak hot air. Fortunately, the Home Survival Toolkit taught me how to solve all these problems and dozens more that I can't wait to tackle. (Let me tell you, there's nothing sadder than having to wait around for a pipe to burst so that you can put your newly learned repair skills to work.)

I've also taken advantage of some of the Home Survival Toolkit's other capabilities. For instance, I used one of its several interactive estimators to figure out how many gallons of paint I would need to repaint the south ballroom. (The answer was too many, so you can forget about the cotillion. I'm just going to turn the whole wing into a stable.)

And I was able to make use of the program's Survival Guides feature, which acts sort of like an electronic Hints From Heloise, to solve problems ranging ftom beer stains on the living room drapes to finding the customer support number for my dishwasher.

When I first saw the Home Survival Toolkit, I was a bit dubious. I was sure there was no way that the developers could squeeze enough useful information onto the Home Survival Toolkit's three little disks to make it worthwhile.

But I was as wrong as a Multimaniac can be (and that's saying a mouthful). Oh, I'd still like to see them add hundreds more how-to-do-its and dozens more Survival Guides and Estimators, and slap the whole mess onto a CD-ROM. But even as it is, I'm impressed with the Home Survival Toolkit. It just plain works.

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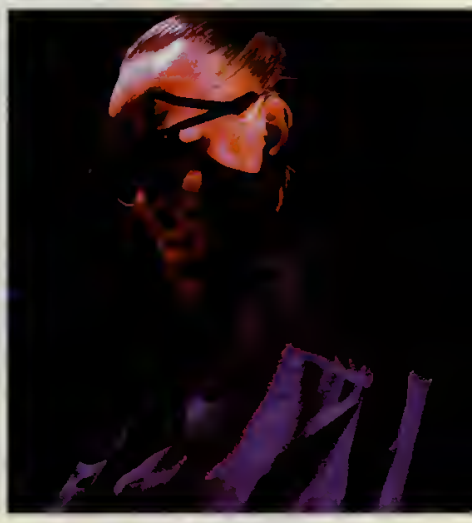

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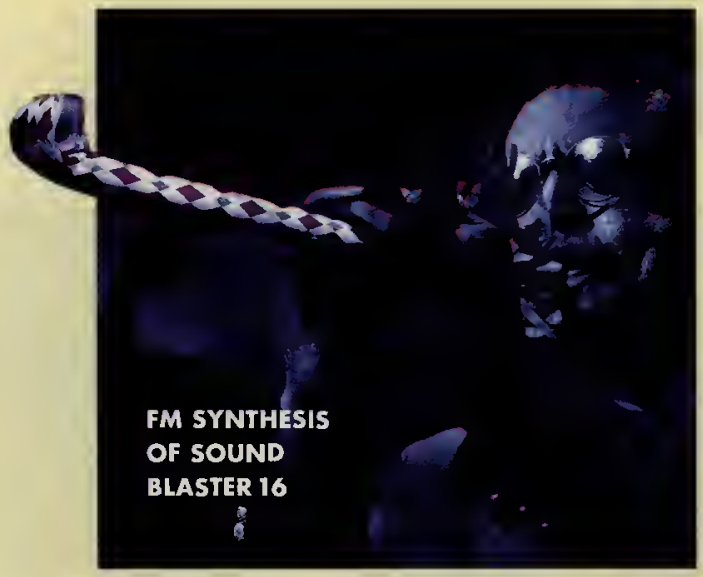

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State OF THE Game

E² REVIEWS, TIPS, AND STRATEGIES FOR THE HOTTEST PC, MAC, AND CD GAMES

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Aegis: Guardian of the Fleet

By Ed Dille

The captain of a ship never goes off duty. He's constantly on call to make split-second decisions that affect the safety of his ship, and only the captain is completely accountable for the actions of the entire crew. This is the burden of command at sea, and it's your burden when you play Software Sorcery's Aegis: Guardian of the Fleet.

Standard surface-to-air missile launch as viewed from the Weapons Control Console.

Aegis puts you squarely in the captain's chair of the most sophisticated multithreat weapons system in the world. You have all the responsibility entailed in that position, and damn little of the glory. There are some advantages, though: Aegis allows you to eschew the mind-numbing drudgery of a junior officer's life and ascend directly to command.

And ignoring normal assignment rotation, you can command your cruiser at any time from the 1982 Falklands War until the present day.

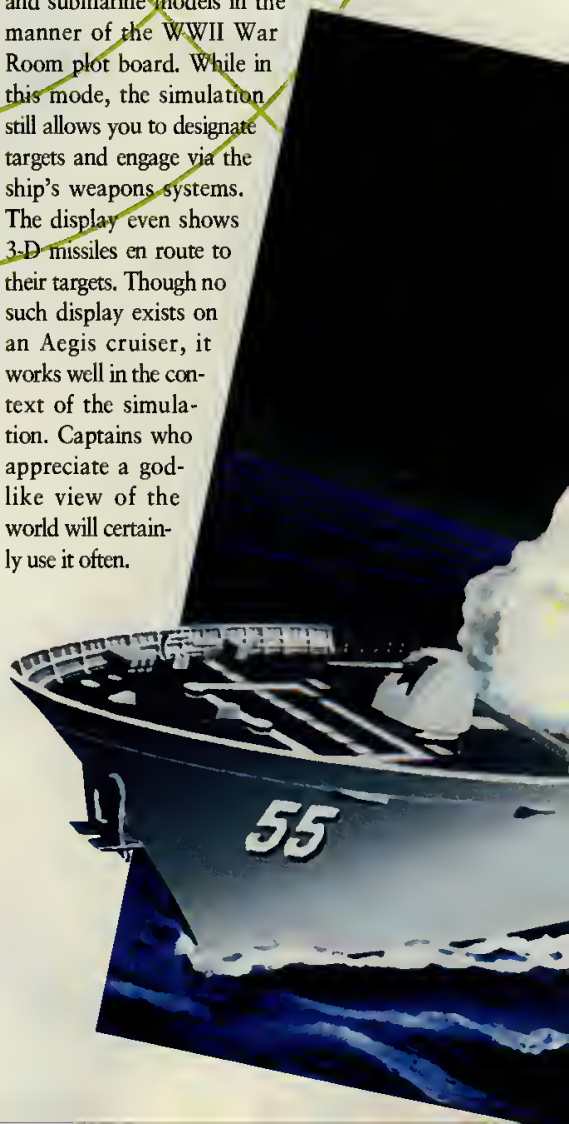
If you haven't stayed current on naval matters during this period, this means that you can participate in the Libya/Tripoli operations, Persian Gulf escort duty, Operations Desert Shield and Storm, and some hypothetical scenarios in the Black and Adriatic Seas. Better yet, the scenario designs avoid the monotony of day-to-day operations and skip directly to the moments of sheer terror that occur immediately prior to and during an engagement. In this respect (and some others as well), Aegis is what the Harpoon gaming system probably should have been.

The primary mission area of the Aegis is Anti-Air Warfare (AAW), which is to provide an umbrella of protection to the fleet units she escorts against inbound aircraft and missiles. In this warfare specialty, Aegis is the most capable single platform in the world. Aegis also possesses a formidable anti-submarine capability (ASW) and significant anti-surface arsenal (ASUW). If each

Electronic intercept information is displayed on the SLQ-32 console.

threat attacked in turns, the command chair of the Aegis might be a comfortable place to be. The reality, however, is that you'll rarely have the luxury of focusing your attention on one area alone.

The wealth of data collected by the many enlisted personnel aboard the ship lets you avoid the minutiae and focus on the Big Picture—a 3-D hologram view that employs moving ship, aircraft, and submarine models in the manner of the WWII War Room plot board. While in this mode, the simulation still allows you to designate targets and engage via the ship's weapons systems. The display even shows 3-D missiles en route to their targets. Though no such display exists on an Aegis cruiser, it works well in the context of the simulation. Captains who appreciate a god-like view of the world will certainly use it often.

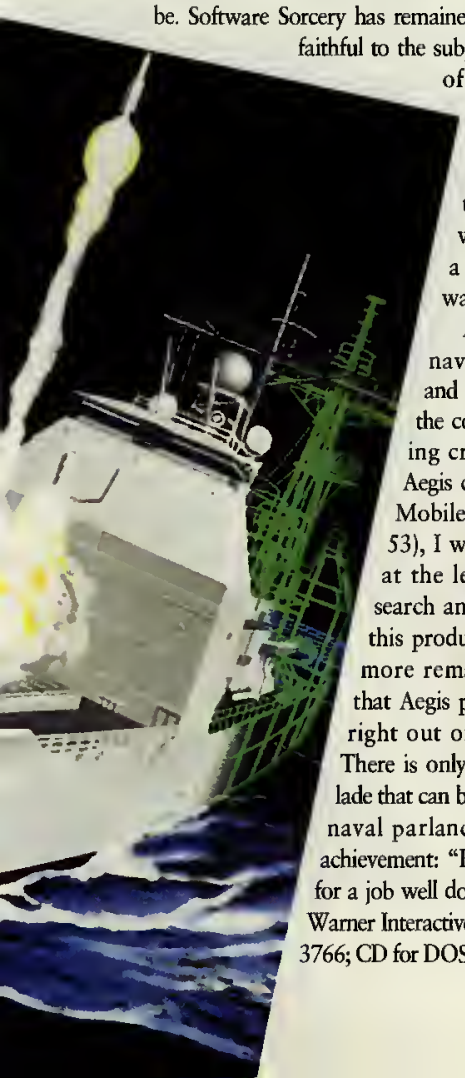


The other Aegis displays are very thorough mock-ups of the critical shipboard consoles, each depicted on an individual screen. Artificial buttons allow quick hops from one console to another. This helps you perform various engagement functions, from target classification and tracking to weapons firing. Although the simulation demands somewhat more hands-on time setting up a shot than an actual captain would experience, this is forgivable given the high standard of realism in weapons performance and tactics.

Guardian of the Fleet is only the second product from Software Sorcery, and I would have expected to find a number of minor flaws. Surprisingly, Aegis is almost as perfect as a game of its type can be. Software Sorcery has remained doggedly faithful to the subject matter, offering an unprecedented look inside the inner workings of a modern warship.

As a former naval officer and member of the commissioning crew of the Aegis cruiser USS Mobile Bay (CG-53), I was amazed at the level of research and detail in this product. All the more remarkable is that Aegis plays easily right out of the box. There is only one accolade that can be offered in naval parlance for this achievement: "Bravo Zulu for a job well done!" (Time Warner Interactive; 800-482-3766; CD for DOS, $69.99)

Aegis provides air cover for units operating in the Persian Gulf: If it flies, it dies!



GAME-WINNING TIPS

Shoot the Archer, Not the Arrow

Monitor UHF/VHF communications, and you'll often intercept inbound enemy raids before they come within striking distance. Arm your Standard missile systems and 5-inch gun immediately, then activate the SPY-1 Radar and set it to maximum range. Arm the SLQ-32 jamming and countermeasures as well as the Vulcan Phalanx Close in Weapons Systems (CIWS) and set them to automatic. When aircraft are visible on the scope, query them with IFF (Identification Friend or Foe). When the targets are classified as hostile, engage them at the maximum range possible.

The Enemy Below

The key to defeating submarines is early detection and standoff engagement. When a subsurface threat is suspected, Aegis should operate at 5 knots or less with the SQR-19 TACTASS towed hydrophone array deployed. This increases passive-detection ranges and provides a minimum sound signature for the enemy to counterdetect. Avoid active sonar except when you've detected inbound torpedoes. If you detect a sub via passive sonar, they'll usually be outside their firing range. Maneuver Aegis to remain outside the enemy sub's weapons envelope and launch the SH-60b Helo to fly out to the sub's location and drop torpedoes on its head.

Dealing with Skimmers

In battling surface ships, the guy that shoots first is usually the winner. The trick is to manage your electronic emissions so that the enemy ship(s) can't identify who you are (for example, illuminate active radar very sparingly, if at all). In the meantime, focus on the SLQ-32 display to intercept his emissions. Your first intercept will give you a bearing to his position, but not the exact range, which is necessary for a proper missile attack. Launch the SH-60b and fly him out along the bearing to look for the enemy.

Aegis features an online manual and warbook for instant access to critical tactical knowledge.

1	2	3	4	5	6	7	8	9	10

Aegis provides a tremendously realistic view of modern naval combat from the perspective of a ship's commanding officer. The interface offers even inexperienced players a fighting chance at managing the complex functions of the fleet's finest warship.

PREVIEW

Archon Ultra

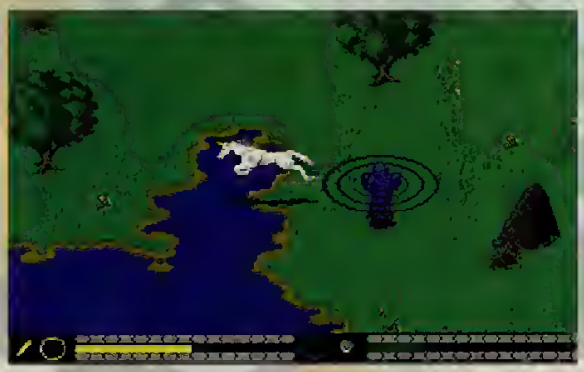
By Rusel DeMaria

The wizard can cast spells, but only one per game.

Archon Ultra is a classic computer game. Originally created for the Apple II back in the mid-eighties, it's back, this time on the PC. Archon's had a graphics face-lift, but the brilliant game design that combines chess-like strategy with arcade action remains the same.

Based upon the age-old conflict between the forces of Light and Dark, Archon's battlefield looks remarkably like a chess board with two fantasy armies squaring off on opposite sides. In the front ranks are the pawns (in this case called Knights and Goblins) flanked by Archers for the Light side and Manticores for the Dark. In the back ranks are Genies, Phoenixes, Banshees, and Dragons, to name a few. Some creatures fly; some must walk. Some can cover half the board in one turn; others can only move a few squares at a time. And each creature has its own method of attack. Some shoot missiles or fireballs, while others may be limited to hand-to-hand combat.

When one piece attacks another in chess, the attacking piece always wins. Not so in Archon. Instead, the game shifts to an arcade-style landscape where hand-eye coordination is king. Here, the two pieces will battle it out, either human against computer or, in a two-player mode, human against human. The winner takes the square and the opposing piece.



Over the river and through the woods—archon expands screen rendering to include water and terrain.

The Light side Wizard and the Dark side Sorceress are the Archon equivalents of the queen in chess. However, their powers are primarily magical, and each can cast a variety of spells, but only once per game. Some spells will be familiar to fantasy game players (Teleport, Heal, Revive); others are specific to Archon. For instance, Shift Time will reverse the cycle of Light and Dark. Used at just the right instant, this spell can dramatically shift the fortunes of the game as well. Summon Elemental will call a powerful creature to do your bidding, something that can take your opponent by surprise when he or she thinks you don't have a powerful piece to send out.

The shifting cycle of Light and Dark contributes significantly to the strategy of the game because the pieces on the board gain or lose strength depending on the color of the square they're on. For instance, if a Light piece attacks a Dark one on a dark square, the Light piece will be weaker than normal and the Dark one will be stronger.

Archon Ultra comes with many user-customizing options, including various handicapping methods to give you more or less advantage against your opponent and even a way to let the computer do the fighting for you in the arcade sequences. Although the arcade side of this game is great fun, you might want to to concentrate on strategy and let the computer do your dirty work.

It's a rare product that successfully combines strategy and skill, but Archon Ultra does it. (SSI; 800-245-4525; DOS/Mac, $89.95)

GAME-WINNING TIPS

Position your pieces on squares where they'll be most powerful. Wait for the right moment to attack the power points.

Use magic spells carefully. Used at just the right time, some spells can dramatically reverse the fortunes of the game.

Defeating your opponent's magic user may be very difficult. However, repeated attacks will weaken and eventually defeat the enemy.

If you play as Light, the game always starts with the cycle moving toward the Dark. This is not necessarily a disadvantage. (Remember the first tip.)

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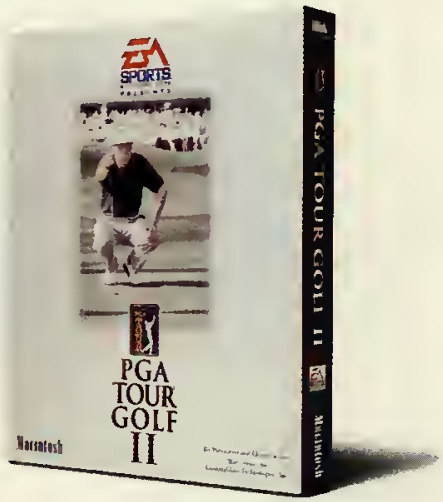

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PREVIEW

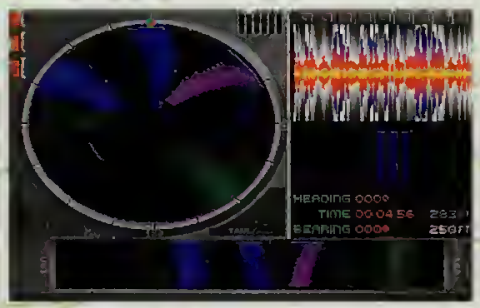
SSN-21 Seawolf

By Ed Dille

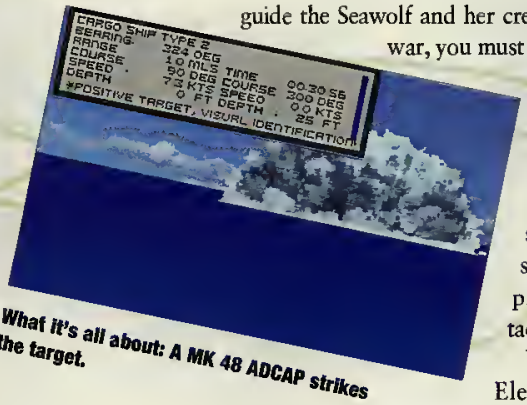
The only room for second place in combat is a 6-by-6-by-3 hole in the ground. Military honors and the knowledge of a job well done are the only rewards for success. Failure will not be tolerated.

As captain of the Seawolf, the most advanced submarine design in the world, you will participate in 33 critical missions that influence the outcome of World War III. In addition to the finest units of the Soviet Fleet, you will also come in contact with other members of the NATO Alliance and the Greater Asian Co-Propriety Sphere, some of whom are exhibiting opportunistic tendencies. To successfully guide the Seawolf and her crew through the war, you must become a master of undersea warfare, exploiting the submarine's greatest strengths—stealth and surprise—in each tactical situation.

The Overhead Tactical Display with Sonar menu open: the beginning of an approach on the Kiev Task Force.



Seawolf's waterfall display: passive sonar tracking in progress. Curvature of bearing lines reveals relative motion.



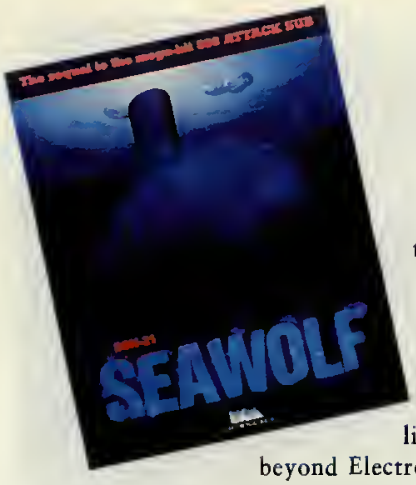
What it's all about: A MK 48 ADCAP strikes the target.

You command Electronic Art's Seawolf with a state-of-the-art pop-up menu console that covers all of the Seawolf's major systems. These menus overlay the right side of the tactical display, an overhead map of the operating area.

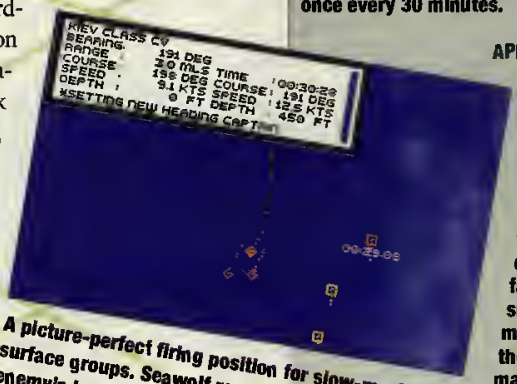
Although several layers of intuitive and easy-to-use menu choices exist, you'll use three screens most often—the Ship Control Panel (SCP), the Weapons Console, and the Sonar menu. The SCP controls course and speed changes as well as waypoint information. The Weapons Console controls the loading and firing of missiles and torpedoes, the deployment of noisemaker countermeasures, and even the use of a remote surface camera. The Sonar menu is vital. Use it for acoustic processing, target identification, and to deploy or retrieve the towed hydrophone array (a specialized sensor that increases passive reception of sound signatures). Learning to switch between these functions rapidly via mouse control is essential to success.

The tactical display map zooms in and out at the click of a mouse button, while contacts appear as circles, diamonds, or squares—friendly, hostile or unknown, respectively. Alternately, you can select a periscope or underwater view to evaluate the effectiveness of your attack firsthand. The periscope views are very well executed with background weather patterns affecting sea state and visibility, and realistic images of individual ship types digitized down

Harpoon Cruise Missile breaks the surface, as seen through Seawolf's periscope.



to minute details in the superstructure. Seawolf is light years beyond Electronic Art's 688 Attack Sub in terms of technology and execution. The complexity of her sensors and weapons systems may seem daunting at first, but the diligent skipper will invest the time to master their nuances. By doing so, you will be rewarded with the satisfaction known only by predators. You will lurk unseen in the depths, striking swiftly and decisively at your prey, then slip back into the darkness, destruction in your wake. (Electronic Arts; 800-245-4525; DOS, $69.95)



A picture-perfect firing position for slow-moving surface groups. Seawolf remains undetected in the enemy's baffles.

GAME-WINNING TIPS

CLEARING THE BAFFLES

A submerged submarine is blind, in every conventional sense of the word. As such, she must learn to "see" by sound. Seawolf's acoustic processing suite offers waterfall and linear displays that collect, process, and disseminate each discrete sound signature. The program even models individual biological activity such as whale song and dolphin speech patterns, in addition to specific tonal patterns and frequency lines for every ship or submarine portrayed in the game. With a good set of headphones, these sound files generate a spatial 3-D effect that approximates actual passive sonar reception.

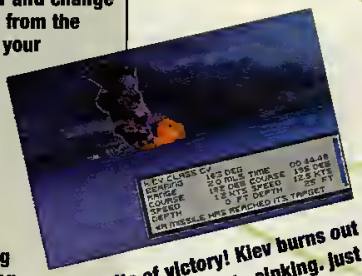
To maximize sonar reception, point your bow at the target. It is important, however, that you also remain cognizant of the 60-degree arc centered on the stern—Seawolf's blind spot, known as the "baffles." To prevent enemy subs from coming up behind her, Seawolf should perform a 180-degree turn to clear the baffles at least once every 30 minutes.

APPROACHING THE BEAMS

Patience is the watchword when conducting an approach into firing position. Hasty attacks are sometimes necessary, but they should be performed only under duress. Fast-moving surface groups offer only a small window of engagement due to the speed of their transit. You cannot match speeds above 8 to 12 knots to shadow the force without grossly increasing your chance of counterdetection by their screening units. As such, it is best to begin a slow approach from forward of their beams (the points directly to either side of a ship), keeping Seawolf's top speed at 6 knots or less.

POSTATTACK PHASE

The approach phase is also the time to plan postattack escape and evasion maneuvers. Here's a good generic plan: After launching the torpedo salvo, drop a noisemaker in the water and change course 120 degrees, preferably away from the side with the strongest escorts. Kick your speed up to full and dive to the first thermal layer below 500 feet. This should be the deep sound channel, which will trap most of Seawolf's radiated noise. At depth, slow to one-quarter speed, drop a second noisemaker, and change course 90 degrees back toward the base course. Continue on this heading for at least 5 minutes before restarting the approach phase for a follow-up attack. If one or more escorts acquire active sonar contact on Seawolf during this phase, turn away at top speed and shoot them in the face with an "over the shoulder" missile salvo. In this instance, their reaction time is minimized and the chances of inflicting timely damage are much greater.



The fruits of victory! Kiev burns out of control just prior to sinking. Just right of that, a Sovremmeny Class DD takes a torpedo in the bow.

Seawolf is light years beyond other subs in technology and execution.

SimHealth

By Richard Raucci

The policy window is where you get down to the business of balancing budgets.

Want to see how hard it is for Bill Clinton to make a feasible health-care plan? Want to have fun doing it? Check out SimHealth from Maxis, a simulation that manages to take some heavy social issues and transform them into an interactive, and yes, fun experience.

Not surprisingly, SimHealth begins with the SimCity game model. The Main Street opening screen presents you with a familiar series of buildings, including a hospital, government headquarters, schools, and businesses. All is well in the city until you hit the street—or more accurately, until a car hits you! Injured, you're transported to the hospital, where, to summarize the nightmare, the current health-care system fails to make you feel any better. Discouraged, you set your sights on changing the system that gave you such a pain in the neck (whiplash?) and set off for a SimCareer in public service.

Inside the hospital, you'll find out firsthand how your decisions affect life and death.

You set up your political platform by considering four key health system conditions: cost, coverage, choice, and technology. You balance each of these according to personal values of liberty, equality, community, and efficiency. Of course, you're elected, and then the game really begins. Now it's time to live up to your political promises (which you'll be rated on later).

The policy window is where you'll get down to business, exploring key volumes from books on insurance funding, cost control, benefits, and different health-care systems. Clicking on each book brings up a policy briefing window—a short overview on implementing the specific policy and information about how much of your operating budget it will eat up and how much political capital you'll need it make it effective.

A series of interactive button menus provide feedback on current states of health coverage and overall care, and you'll use interactive slider bars to activate changes in policy. For example, you can adjust the amounts of coverage employers pay versus employees. You'll also see the results when the simulation implements your policy, both in the current conditions on "Main Street" (where you can see the hospital become run down if things aren't working, for example) and in opinion polls, in which SimCitizens vote on how you're doing.

For those who want to see what's going on in the simulation model, each policy is actually a macro, and you can watch it as it runs. An interesting feature of the macro system is the ability to load external scenarios—one included with the game is the Clinton Health Care Reform Act. Load, run, and evaluate it for yourself. Then send Clinton a message on CompuServe if you want.

Simulation with a social edge is a clear way to communicate issues to a large number of people. Maxis's SimHealth manages to convey the issues of national health care in a well-designed, state-of-the-art game model, with a high level of detail. (Maxis; 800-336-2947; DOS, $39.95)

GAME-WINNING TIPS

Use the Details button in the Policy Brief window to get a full explanation of the subject so you can make an educated decision.

Evaluate New Technology carefully. Avoid buying high-cost medical treatments that don't have clear benefits.

Some policies can take years to show effects. Don't get impatient and implement them too fast, or you'll run out of political clout, ensuring political death.

1	2	3	4	5	6	7	8	9	10

First-rate use of computer simulation to model real-world issues. SimHealth draws nicely from Maxis's experiences with its other Sim products.

Subwar 2050: Futuristic Combat Beneath the Waves

Don't get too "high" when you patrol shallow water.

By Tom Basham

By the year 2050, corporate warfare is a part of everyday life. Not boardroom antics but *real* bombs-away war. A corporation may attack to sabotage a rival's plan or simply to retaliate against an insult. Having used up the land, corporate expansion has turned toward the oceans, intent on harvesting their vast mineral and biological resources. Economic pressures have led to advances in submarine technology, and fleets of "carrier" subs now carry groups of small, fast, and agile "submarine fighters."

SW2050 is an action-based, cockpit-style game set in the not-so-distant future. Players looking for a modern naval simulation will find little of interest in SW2050, but Wing Commander fans will enjoy it.

You're a mercenary fighter-submarine pilot who takes jobs for various corporations. The missions are sequential—you must complete each one before proceeding to the next. However, unlike in Origin's programs, there's hardly a story to tie the missions together. Nor does SW2050 create a deep universe or a particularly innovative experience.

You won't spend too much time in the Ready Room as "Briefings" are short.

While there are excellent graphics in some scenes, others are mediocre. For example, the cockpit view sports only simplified two-bit gauges and displays. Yet external ocean scenes have lifelike detail of subs, sea life, and the ocean floor, which are clearly visible close up but murky at a distance.

The game models both currents and thermoclines. Even though the current may affect a mission, you get no information about it when you're playing. Drifting silently in the current—a common tactic in underwater warfare—is effectively ruled out. Thermoclines, however, appear on the fighter's HUD as a grid with wavelike motion, a good addition that underscores the need for some information on currents.

Game play is extremely difficult, not because of the complexity of the missions but because of the ambiguity of the mission briefings. During training missions, you get precise instructions, such as "attack targets at waypoint 2." During combat missions, though, the instructions are considerably less informative, such as "attack targets and return to base." This may be a feature designed to increase game difficulty, but I'd prefer a more informational briefing so I could focus on mission planning.

SW2050's interface for is somewhat flawed. In the beta version of the software, the cursor movement was choppy with the joystick activated. More important, any submenu or screen you activate during a mission—the damage-display screen, for instance—blocks the forward view.

The most annoying omission is a roster backup scheme. If you fail a mission, you repeat it. If your persona is killed or captured, you have to start the entire campaign over again with a new pilot. SW2050's other flaws are forgivable, but there's no good reason, technical or otherwise, for not including some backup scheme in a game that requires sequential mission completion. Let's hope MicroProse takes this criticism to heart. (MicroProse; 800-879-7529; DOS, $49.95)

GAME-WINNING TIPS

Submarines have lights only on top, making them easy to see from above. Friendly subs always have blue lights, enemy subs always have red lights.

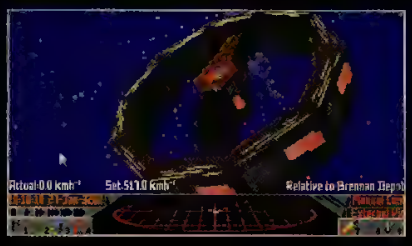
Always know where the thermocline layer is relative to your submarine. Crossing the thermocline often confuses enemy torpedos and can help you escape.

Generally, travel as slowly and quietly as possible, even if it greatly increases mission length. Watch the sonar cross-section display closely to remain silent but deadly.

1	2	3	4	5	6	**7**	8	9	10

Although SW2050 has great visuals and sound, it falters by not providing a way to back up characters and because of its extremely vague mission briefings.

Look ahead. Look far, far ahead to the year 3200 and imagine a basic space craft as your only worthwhile possession. If you are to fulfill your burning ambition to be the best, you must defeat the best by coupling your inherited flying skills with a vast knowledge of the Universe. Outwit the pirates by beating them at their own game. **Be merciless, be wise, and BEWARE!**



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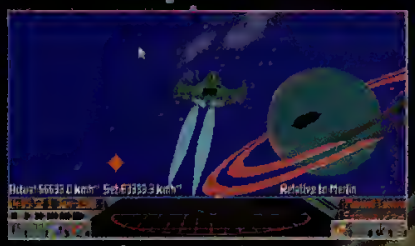

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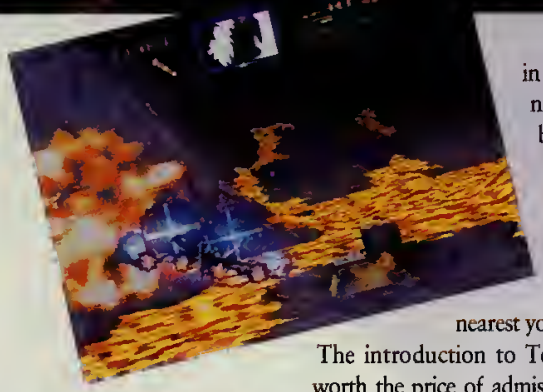
Total Eclipse

Get a grip—on the control pad, that is. Tight maneuvering through traps and tunnels will remind you of the trench run in Star Wars.

By Jeronimo Barrera

I remember looking into the night skies when I was young and wondering when an alien life form would come to Earth and feed on us. Then again, I also thought gargoyles lived outside my bedroom window. Okay. I had some problems. I grew up and the gargoyles went away. So did the aliens. Until I played Total Eclipse from Crystal Dynamics.

Fortunately for humanity, I was at the controls of a powerful X-wing-like ship. Through 5 worlds in 20 graphically stunning levels, I took the battle to the aliens. I'm happy to report that they're not a threat anymore. Or are they? Check on the 3DO system nearest you.



Hint: You gradually lose energy, even if you're dodging enemy fire. Larger targets like the pyramid cannons are good energy sources.

The introduction to Total Eclipse is alone worth the price of admission. Amazing digital actors play out a desperate cinematic scene as Lord Zodak, an unfriendly alien with a squid face, announces that humanity has the honor of being his family's next midnight snack. Naturally, the humans don't think much of the plan, but Zodak isn't a listening type of guy.

This is where you come in. Your first mission sends you alone after the Draksai missile silos. You fly through the canyons and over the plains of the coolest digital landscapes I've seen in any game, shooting everything you see. If you try a nonviolent approach, you're doomed. That's because your ship steadily loses power, and only by destroying enemy structures and ships can you regain that power. It's a pretty harsh system to assure you'll do your job.

Each of the five worlds consists of four rounds with sections above ground and a reflex-testing tunnel ride complete with closing shutters and shifting gates. It takes a little getting used to, but with practice you'll have your fighter banking smoothly through the canyons and squeezing through the tunnels, all the while blasting away with your favorite weapon.

To help you above ground, there's a radar map of the terrain and a small altimeter that also helps you judge how close to the walls you are. No such help exists in the tunnels, but then, that's tunnel vision for you.

Like most shooters, Total Eclipse is difficult if your hand-eye coordination isn't high on the evolutionary scale. But unlike most, this one offers lots of interactive branching paths. It's this nonlinear approach that makes the game more replay-addictive.

Hang on to those air-sick bags. The 360-degree rolls are special effects that can make you dizzy. Is that why I keep doing it? Nah. I do it because it's so much fun to watch the whole landscape rotate around my ship. When a game takes your whole body with it, you know you're hooked, and that's another reason Total Eclipse stands out. (Crystal Dynamics; 415-858-4990; 3DO, $59.99)

GAME-WINNING TIPS

Be sure to master the arts of braking and acceleration. There are many situations when speed control is essential.

Keep moving around, but watch for dead ends. Keep an eye on the radar map.

1	2	3	4	5	6	7	8	9	10

Total Eclipse is a shooter with style. The only drawback is that it might be too hard for some players. It's definitely not for the laid back.

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Now, as you search for survival items and a way off the island, you face a horrifying assortment of flesh-eating zombies, hideous bats, blood-thirsty wolves and other unsavory locals. Can we help it if the press is calling it "gory," "gruesome," "graphic" and "sickening?"

You'll traverse dense jungles, treacherous caves and explore the local village to unlock riddles that could aid your escape. And if you're lucky, you may even rehabilitate a beautiful zombie babe.

But don't forget to keep an eye out behind you. Because on the Isle of the Dead, *you're* on the menu!

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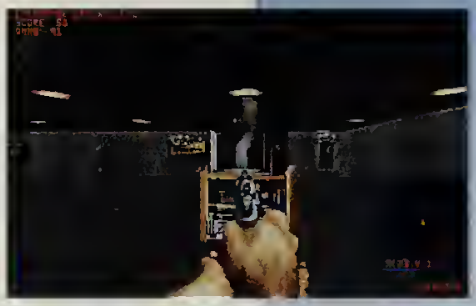
The Terminator: Rampage

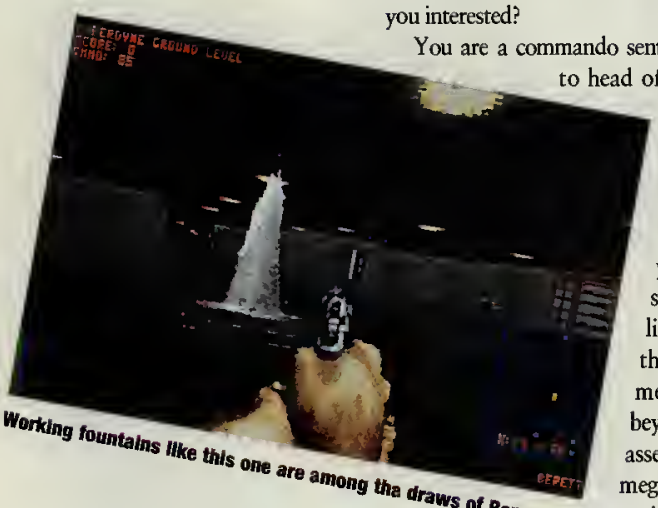
By Peter Olafson

Bethesda Softwork's Rampage is another Terminator movie takeoff that will appeal to the Arnold Schwarzenegger in you. But does it have the brain muscles to keep you interested?



"Hey, the set was showing that annoying exercise-video infomercial. I just put it out of its misery."

You are a commando sent back through time to head off the infiltration of the underground Cyberdyne Systems complex by the enemy's Meta-Node. Of course, you arrive too late, so you set off valiantly to penetrate the 24 large documented levels (and beyond) to retrieve and assemble 14 parts of a mega-weapon and then put it to good use.



Working fountains like this one are among the draws of Rampage.

Rampage's basic principles are those of free-scrolling action games like Wolfenstein 3-D and its cousins: Shoot first and don't ask any questions at all. However, as in Doom, this is distinctly a place by design. Restrooms come complete with sink and toilet. Paintings hang on the walls, cluttered work stations fill alcoves, TVs display static, security cams rotate. It's an eighties sott of place—corporate, subdued, classy, accented by Japanese chic and art deco style on the upper levels.

You're not alone, of course: Seven types of enemies populate Cyberdyne. Floating spheres detonate close by and flying Viking helmets zap you at a distance. There are Schwarzenegger-type walking brick walls, and at the end, the Meta-Node itself. The orange fireballs and sharp, crackling explosions in battle are about the best I've seen.

So what exactly is wrong with this seemingly sharp picture? Well, it starts with little details. Objects like those cluttered work stations turn out to look the same regardless of your perspective. Those static-ridden TVs are always facing you. Doors are oddly squat and square. The various enemies have to be picked up by your targeter before you can hit them, which sometimes doesn't happen when you appear to be pointing at them and sometimes does when you clearly aren't.

And in the end, Cyberdyne's a rather dull and predictable place. Rampage involves running through a great many semi-empty rooms. There's no sense of a concerted enemy game-plan, no discernible puzzles, no challenges beyond reaching exit stairs and keeping equipped with ammo and the latest designer weapons. There's no incremental evidence of the takeover or sense of the filthy business that's afoot here. It's fun being here for a while, but when all's said and done, it's just a treasure hunt. And not quite a rampage. (Bethesda Softworks; 800-677-0700; DOS, $69.95)

1	2	3	4	5	**6**	7	8	9	10

A triumph of style over substance, Rampage offers a stylish game environment with little in the way of game play.

GAME-WINNING TIPS

Be sure to look behind you when the game gets under way. There are some useful supplies in the room there that you could easily neglect.

Conserve your ammo early in the game—there's not much of it—and fire only when you the targeter says you have a valid target. If you run out, you're probably not long for this world.

On Level 1, bear southwest to find the stairs down. (On Level 2, there's more than one set of stairs leading down.)

On Level 3, keep an eye out for the first "Infiltrators." Avoid if possible. If not possible, say a neighborly "how do" with your most substantial ordnance. They look human, but they can absorb huge amounts of punishment before giving up the ghost.

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Deliverance

By Bob LeVitus

Stay on your feet when you fight the Spider Guardian.

Your mission is to release the imprisoned Fairies. Now, no wisecracks. You're the Stormlord—armed with big muscles and an unlimited supply of axes to throw, which you'll certainly need to raid the evil Tnarom's palace and kill carloads of gremlins, flying creatures, creepy-crawly insects, winged warriors, and all sorts of other rough trade. This full-screen-scrolling animated arcade action game comes to you from Inline Software, a familiar name to fans of Firefall Arcade, S.C.O.U.T., and Cogito.

You'll spend most of your time axing enemy creatures.

Deliverance tips its hat to Prince of Persia—hand-eye coordination and a sixth sense about danger are premium skills—although the graphic style here is more complex and cartoonlike, and the emphasis is on fighting. You control your Stormlord using customizable keyboard keys, but if that reminds you too much of typing, Deliverance includes setup files for Gravis GamePad, Gravis MouseStick II, and the MacFly joystick.

Beauty wins by wasting the Beast.

On the way to rescue the Fairies, you'll battle through eight levels, each of which ends with a fight with a fearsome Guardian beast. You must slay the Guardian to continue. No surprise there. Once you've released the Fairies, the game is far from over because you now have the power of flight as well as an arcade-style, charged-up laser gun. You must fly the fairies to safety through the Pits of Fire, the Enchanted Forest, and the Winged Warrior–Filled Skies to the peaceful kingdom of Llyn Cerrig.

Deliverance can be configured in 16 to 256 color modes with three resolutions, from small to large to larger screens. I found the imagery best in the large window which maintained the excellent graphic screens and 256 colors.

Some may find Deliverance's cartoonish violence a trifle gory (the bad guys ooze tons of green blood when you ax them), and I'm not sure I'd recommend this game for young children. Even so, teenagers and adults alike will find Deliverance an enjoyable and addictively challenging way to spend many, many hours. (It took me two days of ftequent play just to finish the first level.) (Inline Software; 800-453-7671; Mac, $49.95)

GAME-WINNING TIPS

Throw an ax in mid-jump to jump higher and tarther.

Don't use opal markers unless you really need them—they cost you 1 unit of energy. You do get the unit ot energy back when you pick the marker up again, but you may need it before that point in the game.

The spider advances whenever you crouch, and he backs up when you stand erect or move toward him.

When you see a "low energy" warning, don't torget that standing still in a sate spot will increase your energy level.

The sweet spot on Tnarom, the guy at the end of level 8, is his teeth. Shoot your laser at his mouth to win the game.

1	2	3	4	5	6	7	**8**	9	10

Good, high-energy action game with cool graphics.

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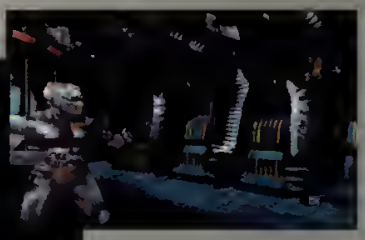

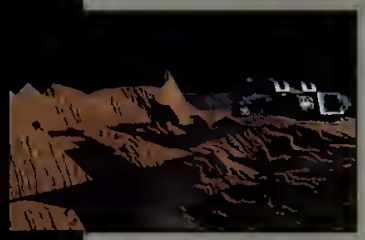

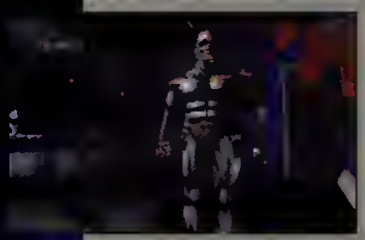

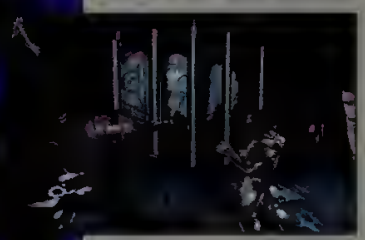

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Nanotank

By Wayne Kawamoto

Find your way to the exit by making the right connections. Each switch and device can help or hinder you.

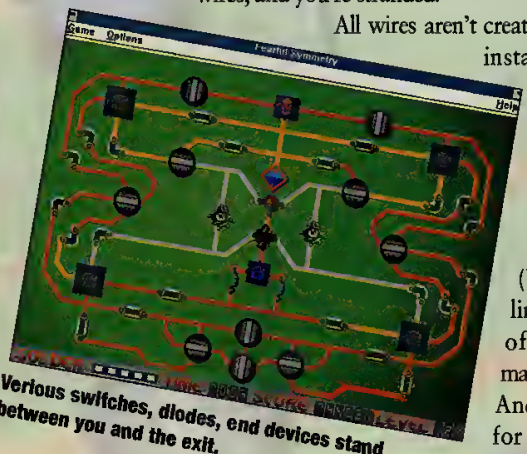
Your enemy is a computer virus in Twin Dolphin's Nanotank. But this virus isn't going to just reformat your hard drive or suggest that we legalize grass—it's trying to destroy your ship and civilization as we know it. Your virus checker won't do squat. It's up to you.

One hundred devious logic puzzles challenge you with switches and various devices.

Nanotank is a logic puzzle game with 100 levels that wrack your brain and keep you coming back for more. With its clean, attractive graphics and simple but appropriate sound effects, it's also a visual and audio pleaser. And because it runs under Windows, Nanotank is just a mouse click away.

You're stranded on a ship with no place to turn. You can't even phone home for fear of spreading the virus. As a last resort, an engineer rigs a microscopic remote-control probe—the nanotank—that you must guide through a computer's tangle of circuits to ultimately disarm the virus.

Your nanotank has no power of its own—it draws power by traveling along the "hot" wires that carry energy. These paths, are shown as pulsing lines. Veer too far from the energy-laden wires, and you're stranded.



Various switches, diodes, and devices stand between you and the exit.

All wires aren't created equal. For instance, jumper wires carry current, but they won't support the weight of your tank. (You have a limited supply of solder for making repairs.) And watch out for bad current or trace bugs flowing through some circuits they'll pretty much fry your tank.

At the heart of the game are switches that control portions of the circuit. On each level, you'll have to figure out what the switches do and use them to control the power grid. Switches aren't the only devices you'll have to master, though. Diodes let you travel in one direction along a wire, while teleporters jump you to other locations. You can only travel in straight lines through relays, which exist at wire intersections.

The nanotank stores just enough power to move a short distance before it runs out. You can make brief forays into unpowered sections of a board if you can locate a capacitor to recharge your tank.

Nanotank's first 25 puzzles are straightforward—in fact, they're a cakewalk designed to familiarize you with the game and devices. At higher levels, perhaps the word "harrowing" is more appropriate.

Whatever level you play at, Nanotank is a creative puzzle game that will captivate and entertain—and may have you pulling out your hair. (Twin Dolphin Games; 800-245-4525; Windows, $39.95)

GAME-WINNING TIPS

Experiment. Make sure thet you understand how eech device works.

Look for cherged capecitors when you can't find enother wey past e certain spot.

Be sure to try ell the remote switches to find out what they change.

1	2	3	4	5	6	7	8	9	10

Nenotank is en imeginetive brein teaser with a wide variety of challenges and e consistent internal logic. It may not be for everybody, but it's a great chellenge to the gray metter.

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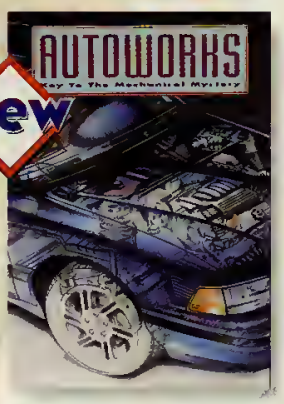

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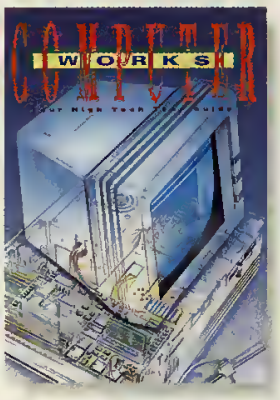

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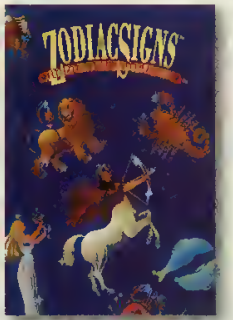

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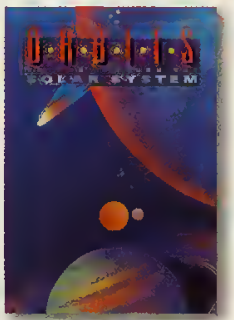

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Circle 161 on Reader Service Card

Doom

By Gregg Keizer

Doom's claustrophobic feeling comes from the low ceilings, the dim lighting, nnd the things thnt get just n little too close for comfort.

Rate this one BL-21—Bloodthirsty, for 21-year-olds and up.

Doom, next in line from Id Software, the boys who brought PC fast action back from the dead with 1992's Wolfenstein 3D, isn't for the kids. But for anyone who knows the difference between aggressive fantasy and actual mayhem, it's a skull-banging, palm-sweating, blood-pounding game that's absolutely, positively gotta find a home on your hard disk.

Like its forerunner, Doom sets you in a 3-D, first-person perspective that puts you behind a virtual camera. You see no more of your character than a hand holding a weapon. And like Wolfenstein, Doom depends on ultra-smooth graphics—detailed no less—for its ambiance.

Doom's different, though. Thanks to the low ceilings in the corridors and some dim, *film noir*-style lighting, the place is claustrophobic, scary around the edges, and if the PC came with scratch-'n'-sniff cards, it would probably smell like a damp basement with a dead cat in the corner. It can't help but give you the creeps, and that's even without all the gruesome-looking aliens and possessed humans that hide around corners, behind doors, and in the shadows. And since it runs on a network, assuming your office allows after-hours entertainment on the wire, as many as four can play cooperatively or in a no-holds-barred death match.

Id knows action, but it doesn't mess much with story. You're stalking the halls and rooms of a futuristic station on a moon of Mars, thinking only of staying alive, blowing away the bad guys, and scooping up more ammo, in that order. Sure, you'll want to move through its multiple levels, but that's almost beside the point. Armed, if not dangerous, you can maneuver through the mazes under keyboard-only control, recommended over mouse or joystick. Movement's fast, instantly responsive to the keys (especially on a 486 machine). And the sound is as chilling and dark as the scenery.

Doom doesn't disappoint on the gore meter. Your victims go down in a spray of body fluids, holes punched here and there on their torsos. Don't bother with Doom if on-screen violence sends you screaming to a Senate subcommittee.

The single toughest thing about Doom is getting your hands on a copy. Since it's shareware, you won't find it on a store shelf, so you'll have to download it from an online service or BBS, or deal with Id directly.

But it's definitely worth the trouble. (Id Software; 800-434-2637; DOS, $40)

GAME-WINNING TIPS

When it's too dnrk to see, try turning up the brightness on your monitor for some nd hoc night vision.

Stay out of the open. Use corners nnd pillars for shelter from the storm.

All of Doom's n free-fire zone: If it moves, kill it.

1	2	3	4	5	6	7	8	9	10

Action on the PC doesn't get any better than this gnme of mortal combat in dim corridors. Using its trndemnrk first-person, 3-D perspective, Id's done one better thnn Wolfenstein 3D here.

Hey Mom! Hey Dad! Hey kids!

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THE SOFTWARE TOOLWORKS

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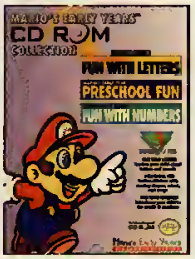

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Circle S3 on Reader Service Card

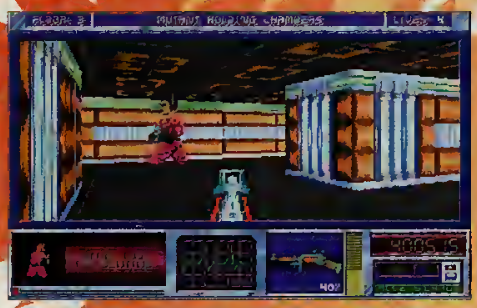
Blake Stone: Aliens of Gold

By Peter Olafson

Blake Stone: Aliens of Gold delivers Apogee's first three-dimensional action game since Wolfenstein 3-D isn't simply a Son of Wolfenstein, and it's certainly not a Doo 3. But it is a wishlist fulfilled, enhancing the Wolfenstein canon with many sensible tweaks and some new tricks that'll make your jaw drop.

Hey, it took my quarter!

The 66-level, 3-D shoot-'em-up preserves all the core elements that made Wolfenstein part of the popular vocabulary: the zippy scrolling, the long-corridor structure, the gleaming wall tiles, the Mario Brothers-ish infatuation with secret areas, the elevator exits and, natch, the guards and monsters who go down with much display of great gobs of greasy grimy gopher guts. (Hence, Blake's self-imposed PC-13 rating.) Only now they're bellowing "Medic!" and "I'm down!" instead of "Achtung!" You're cast as James Bond–style British intelligence agent Blake Stone—this comes as a surprise, right?—who's on the trail of mad genetics professor Pyrus W. Goldfire.



This chump apparently has run out of ammo, and is making for more hospitable climes. Not so fast, mate ...

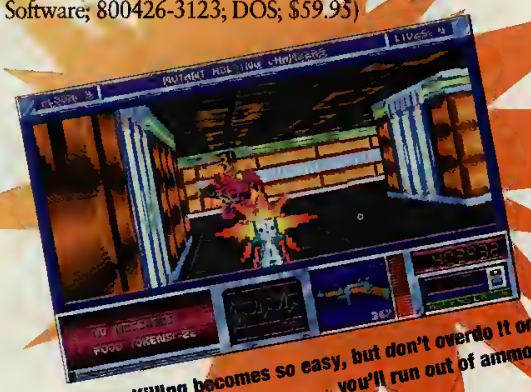
There's more of just about everything: More varied color and sound. Detailed ceilings and floors (which you can toggle off in the interest of speed). One-way doors, monsters hiding in cases, and others that leap suddenly from gurneys. Gun turrets in the ceilings. Plenty to keep you on the edge of your seat.

Your nemesis, Dr. Goldfire, occasionally appears to rattle your cage, only to dematerialize before you can cut him to ribbons.

Wolfenstein's environment was barely interactive; about all you could do was open doors and activate the level-ending elevators. Blake Stone throws in food machines to operate (if you have the necessary food tokens) and forcefields to deactivate (if you have the yarbles to deal with what's behind 'em). A keypress away you'll find a convenient auto-map that charts where you've been.

And while the game still has the end-of-episode showdowns with enormous brutes, you'll also find your nemesis haunting and taunting you throughout the game. Goldfire's not just another heavy-duty monster here, as Hitler was in Wolfenstein, but *the* monster. By the end of the first of the six episodes, you'll hate his guts. (Hey, by the end of the game, you'll hopefully see his guts.)

The worst thing I can say about Blake Stone is that it isn't Wolfenstein—with that game's brand-newness and its grounding in historical antipathies—but I got over that after about four levels. Blake may not be quite a classic itself, but it is every bit a worthy successor to a classic, and that's all we ever had a right to expect. (Apogee Software; 800426-3123; DOS; $59.95)



Killing becomes so easy, but don't overdo it or you'll run out of ammo.

GAME-WINNING TIPS

Don't be shy about retreating to earlier levels if you can't find comfort and joy where you are.

Use the auto-map to determine which parts of a level are likely to conceal secret areas, and then do the old nose-to-the-wall shuffle, with the spacebar depressed, in the appropriate spots.

The gun turrets are killers, but they're easily demolished. Keep eyes peeled for them, and take them out before they take you down.

1	2	3	4	5	6	7	8	9	10

A worthy successor to the seminal 3-D action game, Blake Stone adds a number of striking touches to the Wolfenstein 3-D formula.

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Circle 40 on Reader Service Card

Walls of Rome

By Al Giovetti

Zoom in on the overhead view and witness individual man-to-man combat.

Friends, Romans and countrymen, lend me your PCs. I come not to bury Mindcraft's Walls of Rome, but to praise it as a much improved sequel to the fantasy strategy game Siege and its upgrade scenario, Dogs of War.

Walls of Rome has no use for elves, dwarves, and other puny inhabitants of fantasy games. Instead, it brings on the ancient warring Celts, Iberians, Phoenicians, and Romans, ready to do battle with its armies, which you command.

Walls of Rome distinguishes itself both by its greater innate intelligence and by its accurate historical context. The tools of the trade are siege towers, ballista, catapults, ladders, bridges, battering rams, Greek fire, and tunnels. Against them stand the mighty fortress walls, boiling pots of oil, and more catapults. Walls uses 32 historically accurate troop types divided into 6 groups: Celts, Iberians, Phoenicians, Numidians, Parthians, and Romans. Each warring country can have within its ranks as many as 9 and as few as 3 troop types.

Walls of Rome is much improved over the original Siege, though on the surface they appear identical. The computer intelligence of Walls of Rome is more unpredictable; for example, combatants can make feint attacks in one place and follow up with a full force attack in another. The use of undermining walls, key area refortification, randomized strategies, and multiple attacker barracks gives the illusion of greater artificial intelligence and makes playing the new game more engaging.

There are 6 campaigns as well as eighteen single siege battles, with 21 distinct map types. To add variety and more player control, the game includes a map and battle editor that allows you to change the length of the siege, the numbers and types of troops and equipment, and even the number of hours of daylight.

Hot-key macros support all commands. The commands give full control of all desired possible actions, though the complex command system requires some investment of time to master.

A few quibbles: The music is monotonous and the graphics are simple and unremarkable. Walls of Rome doesn't support head-to-head play via modems or networks.

Still, if you liked Siege, you'll enjoy the improved Walls of Rome. It's a solid strategy game. (Mindcraft Software; 800-525-4933; DOS, $59.95)

GAME-WINNING TIPS

Get higher points by occupying storage areas, which are usually high-point-value locations that are not defended.

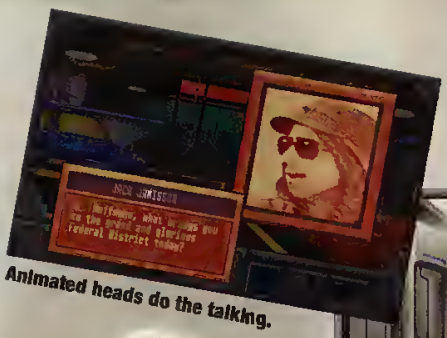
Start with the battles with the suffix -1. These are beginner scenarios.

If speed is a factor, remember that small groups attract less interest and can speedily travel areas that larger groups have to squeeze through.

1	2	3	4	5	6	**7**	8	9	10

A satisfying historical perspective provides a positive experience, but the graphics and sound are uninspiring and the lack of head-to-head play is a minus.

Kronolog



Animated heads do the talking.

The artwork looks less like a cartoon and more like a film in Merit's impressive graphics adventure.

By Barry Brenesal

Combine the Third Reich and a time machine into a story. Pepper them up by throwing in an atom bomb. Simmer together until the year 2020, then serve. The result is Kronolog, a visonary what-if graphic adventure of an alternate future.

A middle-aged biochemist and industrialist working for the Nazified NADA (North American Democratic Alliance), Mark Hoffman is one of the privileged class. Hoffmann, however, is more than he seems. He's also the leader of an underground movement called The Unknowns, dedicated to the destruction of the Nazi state.

Considerable depth of field contributes to Kronolog's impressive visuals.

Hoffman's college-age son, Philip, has been killed in a suspicious accident, and a personal investigation reveals a planet staggering towards ecological disaster and a hidden war being fought with the Nazis' erstwhile allies, the Japanese Empire. More importantly, Hoffman has discovered how the Nazis won WWII—and what can be done, 75 years later, to change that. Now it's up to you to guide Hoffman through a time-bending adventure so he can make things right.

Sound heavy on plot? That's not surprising: considering the creative team behind this game is comprised of former repertory theater people. Perhaps as a result, Kronolog plays less like a simple quest with puzzles than an interactive movie screenplay.

Adding to the richness of the experience is the loving attention to detail throughout the game. For instance, you might expect ID card–activated elevators in a Nazi-inspired society, with floor access restricted depending upon security level. But as Hoffmann slides in his card, an LCD display above the floor selection suddenly reads "Today's Thought:" followed in a moment by "Remember the Zeppelin."

You'll hear all the dialog as you read it, from actors who sound perfect for their parts. (And note how a voice fades as that character moves off into the distance. Nice touch.) Whenever a character speaks, his actor's head appears in digitized VGA relief above the figure. It animates, going through a short loop that doesn't match the spoken words. Fairly good idea. Bad execution.

Their concern for cinematic reality encouraged Kronolog's creators to make you work for visible results. Hoffmann can't just pick up an object on the right side of the screen when he enters on the left, as in most graphics adventures. You have to position him nearly on top of the desired object, then activate the hand icon, and pick it up.

What's more, the pointer isn't "smart"—it doesn't change function appropriately when placed over a person, an object, or an exit. Right-clicking the mouse does move quickly through most of your pop-up menu choices, but this solution lacks the elegance of other games on today's market. You can separately change the volumes of Kronolog's MIDI music, game animation, and SFX sound effects/voices.

For sheer characterization and finely detailed reality, nothing on the gaming front currently approaches Kronolog. It's a thriller in the best sense of the word, a graphic adventure whose difficult, complex maze puzzles only contribute to the unfolding story and the ever-growing tension. (Merit Software; 800-238-4277; DOS, $69.95)

GAME-WINNING TIPS

Special objects you can pick up are not highlighted. To complicate matters, most objects you encounter aren't important. With only 12 slots allowed in your inventory, choose wisely.

Save your game frequently, once every two to three scenes. Mark Hoffmann can be easily killed, and objects you need can be easily missed.

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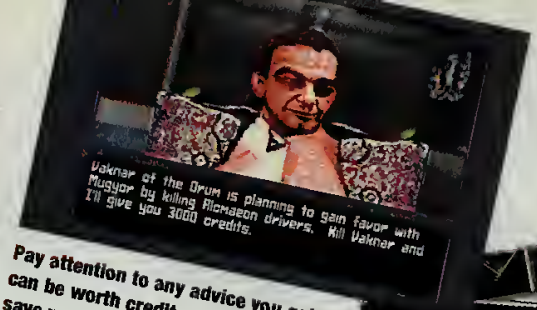
Great detail and characterization; only the not-so-smart cursor and the somewhat flawed use of digitized actors bring it down.

CyberRace

By Christopher Lindquist

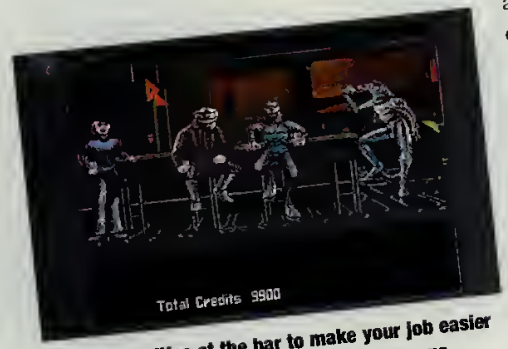


Pay attention to any advice you get. It can be worth credits and might just save your neck.

Get out of the way fast when the race starts, or you're liable to take a lot of hits early. You'll be able to make up any ground you lose later on.

A horrible accident during interplanetary war destroys an entire galaxy and leaves a gaping black hole in its place. The horrified combatants decide to eliminate war and replace it with the CyberRace, a winner-take-all contest in which representatives from five races compete to resolve disputes.

Inspired by an illustration by Syd Mead, an award-winning designer for movies such as *BladeRunner*, CyberRace is a cinematic action adventure from Cyberdreams. You play the reluctant hero, the son of a legendary CyberRacer who was killed by the evil Mugyor. If revenge weren't motivation enough, your government is holding your girlfriend hostage to force you to compete.



Use the low-lifes at the bar to make your job easier on the track by buying black-market weapons, insider information, or even a little sabotage.

The concept behind the game play is exciting. You fly a high-tech "sled" mere inches off the ground. The terrain is rough and your deadly rivals are even rougher. But roughest of all are the programming bugs and bad storytelling that plagued what could have been a pulse-pounding joyride.

The first challenge for new CyberRacers is getting through the ill-conceived dialogue and mediocre graphics in the "cinematic" sequences before races. The "live actors" all look like they were embalmed years ago, and if the dialogue is meant to be a purposely kitschy takeoff on bad science fiction, it isn't funny.

The digitized dialogue stops shortly after the first movie sequence begins—but unfortunately, it isn't supposed to. Though the game functioned nearly flawlessly on a system using a Media Vision Memphis, CyberRace had problems working with the sound boards in test systems using 16-bit Creative Labs and Orchid sound cards. Digitized speech cut off abruptly, and sound effects would play for only the first few minutes of a game. On both systems, the game would freeze momentarily in the middle of explosions and sometimes lock up entirely.

Cyberdreams' technical support answered my calls courteously and quickly and offered a partial resolution (the irksome task of changing address and DMA settings on my sound card). They also reported problems with some machines that use Phoenix's BIOS. Cyberdreams did promise that any bug fixes will be posted to CompuServe as soon as they're available.

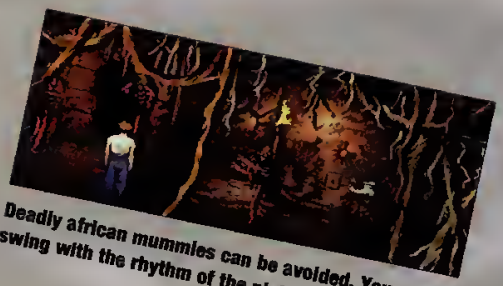
Once you make it onto the course, things improve dramatically. The graphics quality (particularly on faster machines) is impressive, and the roller-coaster feeling of skimming over alien terrains is exhilarating. You simply control acceleration, direction, weapons selection/firing, and which "view" of the action you want to take. Altitude is adjusted automatically. If you're hit, your sled becomes momentarily immobilized, making you a sitting duck. Get hit once too often, and you'll find yourself hopelessly stuck and sitting at the bottom of the standings. If you sled is destroyed completely, you'll get post-mortem view of Mugyor's coronation as master of the universe.

CyberRace is a great concept that needs better execution. I could overlook some of the bad acting—the action is what I came for, anyway—but the bugs were a problem. CyberRace comes close to the mark, but that's all. (Cyberdreams Interactive Entertainment; 818-348-9990; CD for DOS/DOS, $69.95)

1	2	3	4	5	6	**7**	8	9	10

Had the game been bug-free, it would easily have rated an 8. If the story line and cinematics were better, the score would have been higher, too.

Gabriel Knight: Sins of the Fathers



Deadly african mummies can be avoided. You must swing with the rhythm of the plot.

By Al Giovetti

It's his recurring nightmare—fire burning within two concentric circles; an ancient, magical medallion of gold; the face of a beautiful woman; dancing figures; the snake . . . Then he sees himself, hanging by the neck from the dead limb of a large tree. He wakes up screaming.

Visit famous New Orlean's landmarks and enlist the help of locals.

Meet Gabriel Knight, a neo-gothic horror novelist who's researching New Orleans voodoo murders. He's a dangerous man with a dark past and what may prove to be an even darker future. What are these horrible dreams? Watch his dreams carefully, no matter how terrifying, because only you can find the clues that will help Gabriel solve the mystery in this gothic graphic adventure from Sierra.

Gabriel insults, demands, solicits, and charms, getting people to do what he wants, without regard for their feelings or well-being. But there's something in Gabriel's irreverant, reckless, and arrogant character that draws you to him. Despite his boorish personality, you'll be motivated to help him understand the dangers facing him.

As you guide Gabriel Knight through the adventure and meet the other characters, you'll get involved in conversations as complex and unpredictable as any you might have in real life. The number of topics you can discuss increases as you unravel the plot, thread by thread. And ultimately, as Gabriel continues his research, he learns from his experiences and becomes more sensitive and aware of others—a real nineties kind of guy.

The high-resolution, 3-D-rendered graphics appear more like a well-drawn comic than a computer game. The dark colors of the backgrounds and animations, the moody and often sensual music, and the startling sound effects enhance the dark mood. The depth of characterization and the richness of the interplay between reality and fantasy make this an excellent thriller.

Gabriel Knight is a game of contrasts and transitions, and of conflict, both external and internal. It's not a game for kids, but you'll find the mature moral issues a refreshing contrast to other adult games. (Sierra On-Line; 800-743-7725; DOS, $69.95, CD for DOS/Windows, $79.95)

Gabriel Knight on CD

The story told in the CD version of Gabriel Knight is the same one you'll get on a floppy, but there's a world of difference between the two versions. In addition to including a few extra animated sequences, Gabriel Knight boasts the largest collection of Hollywood star power ever used for voice-overs in a computer game.

The CD uses voice for every written line in the game, including the narration. For Gabriel, veteran actor Tim Curry has created a voice that reflects the character's erotic, insensitive, yet likeable personality.

Also in the cast are Mark Hamill, best known as Luke Skywalker, who plays Detective Mosely, and Efrem Zimbalist, Jr., who portrays Wolfgang, Gabriel's uncle. Both have extensive voice-over experience and have worked on the Batman animated series. Michael Dorn, Star Trek's Lt. Worf, plays Dr. John using a Cajun version of his resonant voice. Tony award winner Virginia Capers narrates the story.

GAME-WINNING TIPS

Find the crime scene on day one by going to Jackson Square. Walk near the mime, then walk near the cop. When the cop chases the mime, use the radio on the cop's motorcycle to locate the crime scene.

Find the serpent arm band by going to Cazaunoux's house with the hair gel and a priest's collar and shirt. Find Cazaunoux's address by calling all the phone numbers with that name in the phone book.

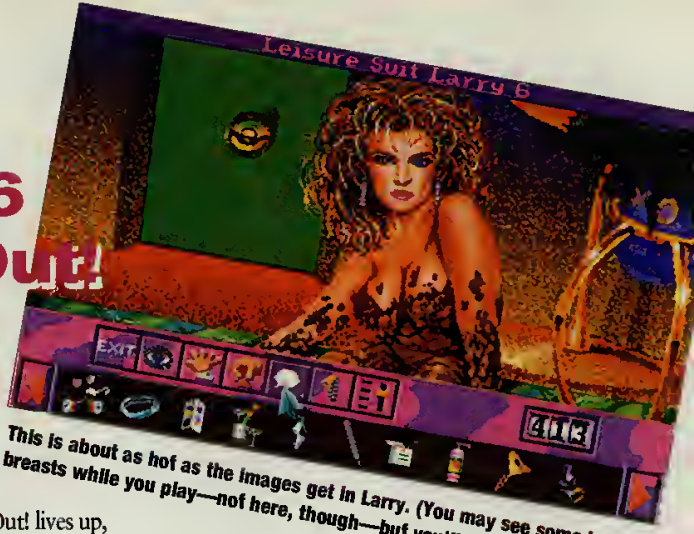
In the African snake mound, put the tiles in numerical order, clockwise. Use the snake rod in tile 3. Run clockwise and avoid the arcade-sequence mummy guards. Use the vine in room 6 to get into room 7 and enter the inner circle.

1	2	3	4	5	6	7	8	9	10

Intelligent, adult game and theme with excellent graphics.

Leisure Suit Larry 6 Shape Up or Slip Out!

By Gregg Keizer

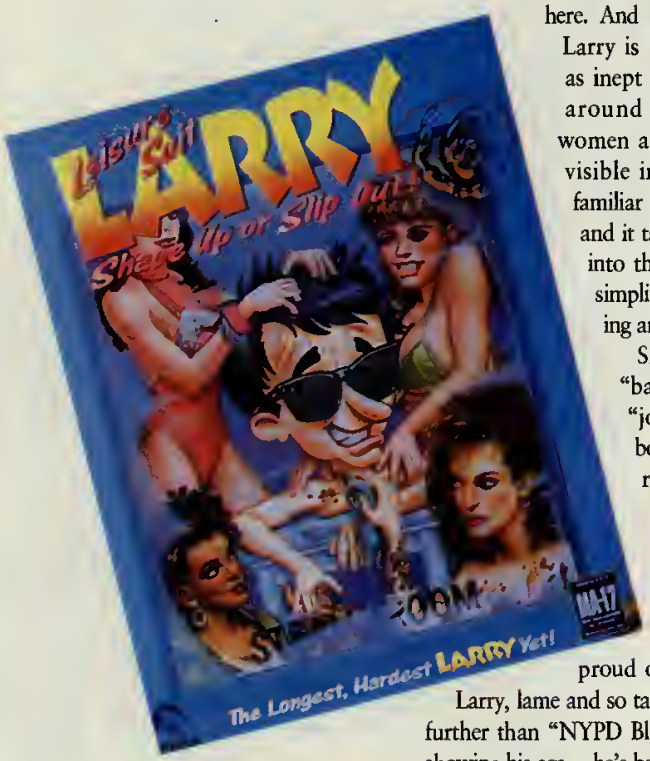


This is about as hot as the images get in Larry. (You may see some bare breasts while you play—not here, though—but you'll die for trying.)

Larry Laffer, the quintessential digital doofus, is back on the hard drive again. And like earlier forays into bad taste and bad manners, Leisure Suit Larry 6: Shape Up or Slip Out! lives up, or down, to the Laffer reputation. Devotees of this Sierra series won't be disappointed, but to many of the rest of us, Larry's gotten creaky and predictable, a bit like a Bond film starring Roger Moore.

If you've played any recent Larry, you'll feel right at home in Larry 6, in which Laffer wins a stay at a female-filled resort. No major changes in animation, background graphics, or close-ups here. And Larry is as inept around women as ever. A new, always-visible inventory improves the familiar point-and-click interface, and it takes half a minute to fall into the pattern as you pursue simplistic adventure-style hunting and gathering.

In a sop—or is that soap—to fairness, a few naked guys show up in the shower.



Sierra may pitch the "bawdy brain teasers" and "jokes, puns, gags" on its box copy (yeah, and we all read *Playboy* "for the articles"), but the reason you play Larry is strictly to dabble in prurient pursuits at the PC. But if you're prurient and proud of it, why settle for this Larry, lame and so tame that it rarely goes any further than "NYPD Blue"? That's why Larry's showing his age ... he's been passed by more honest prurience, on and off the computer. Larry's become the one thing that could kill him off—cute.

As sex, as humor, Larry 6 is strictly high-school locker room. But there are scenes that are neither cute nor funny in this cartoon-like context. The ending, however, is Larry's saving grace. The writing shines when Laffer encounters true love—a character who, if Shirley MacLaine gives up the ghost, could pose for the definitive New Age recruiting poster. I didn't grin but a few times during all the rest of Larry 6, but I laughed hard enough to hiccup at the end.

Since Larry is so clearly a cartoon, why not make it one from start to finish? Why make us wade through complex procedures that run Laffer from one end of the resort to the other, simply gathering pieces to the puzzle? With such a great payoff, it would have worked.

Oh well! Larry's a tradition now, and traditions don't change. And that's the shame of this game. (Sierra On-Line; 800-743-7725; CD for DOS/Windows, $69.95)

GAME-WINNING TIPS

Before you start moving Larry hither and yon, hit the Controls to turn up his walking speed. He'll move like molasses otherwise.

Visit all the sets, talk to all the characters, pick up anything that's not nailed down. Good advice in any graphic adventure, but key in Larry.

Inflating the flat beaver before you head into the pool demands a trip to the roach coach.

Keep clickin' on that USMC shirt, but make sure you've got the game saved before you do.

1	2	3	4	5	6	**7**	8	9	10

Leisure Suit Larry 6: Shape Up or Slip Out! is more of the same. Same humor, same sort of puzzles, same somewhat tawdry escapades.

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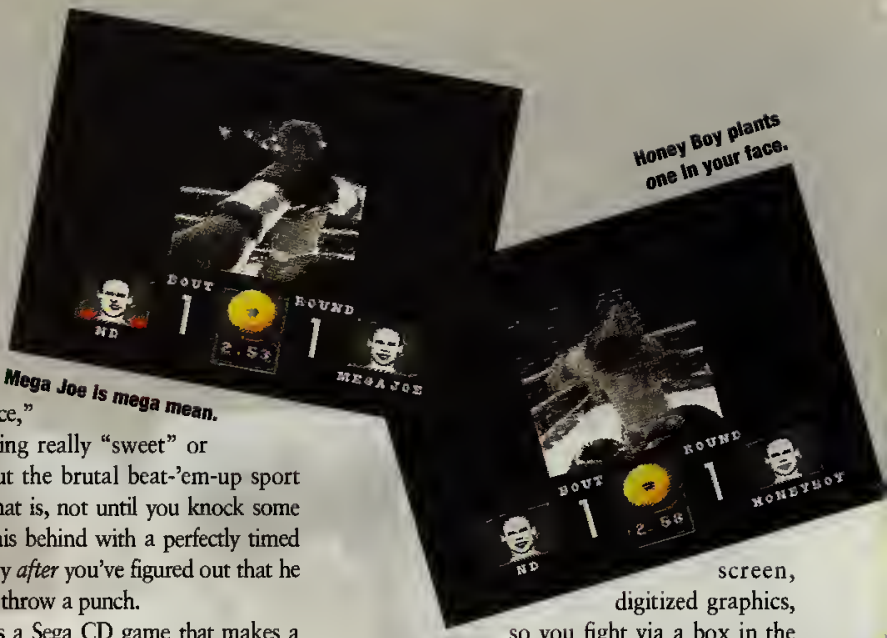
6AC

Prize Fighter

By Wes Nihei



Mega Joe is mega mean.

Honey Boy plants one in your face.

It's called the "sweet science," but there's nothing really "sweet" or "scientific" about the brutal beat-'em-up sport called boxing. That is, not until you knock some wiseguy flat on his behind with a perfectly timed left hook, but only *after* you've figured out that he drops his right to throw a punch.

Prize Fighter is a Sega CD game that makes a bid to combine style and substance in order to capture the essence of professional boxing, and it lands more shots then it takes. The game is programmed by Digital Pictures, a company making a name for itself by using real actors in such Sega CD games as Night Trap and Ground Zero Texas.

Prize Fighter's graphics are the main event. They take an old boxing adage to heart: Turn a disadvantage into an advantage. In this case, Prize Fighter exploits the Sega CD's typically grainy graphics by displaying the action in black and white, which adds a gritty photo-realistic atmosphere. To add even more punch to the proceedings, the graphics were directed with considerable skill and style by Ron Stein, the director of photography for Martin Scorcese's classic fight film, *Raging Bull*.

Michael Buffer: "Let's get rrready to ruuuumble!"

Beautifully filmed but excruciatingly slow motion scenes illustrate every punch you land. At the beginning of every fight, the walk from the dressing room to the ring captures all the frenzy and excitement of the real thing.

The acting crew also performs like champions. The fighters look tough and move like pros. Real-life referee Gene LeBell takes charge in the ring. You also deserve 100 bonus trivia points if you identify veteran character actor Dick Miller in your corner. However, fight fans will get a real charge from the presence and performance of superstar ring announcer Michael ("Let's get rrready to ruuuumble!") Buffer.

The Sega CD lacks the muscle to display full-screen, digitized graphics, so you fight via a box in the middle of the screen. The effect is like fighting with tunnel vision, but game play is compelling enough to overcome the cramped screen.

The game controls feel a tad slow, but you learn to throw your fists with a certain rhythm that lands punches. To help you monitor damage you receive and inflict, you and your adversary have an onscreen "face" meter, which registers punishment in gruesome detail.

The boxing is fierce. You fight via a first-person perspective, with a solid arsenal of punches including jabs, hooks, and uppercuts. On defense you get three blocks, and you can bob left and right. Your fighting skills are honed against four outrageously tough boxers, who span the weight classifications from middle- to heavyweights. Fights go three rounds at 3 minutes a round.

This is a boxing game for serious fight fans, who are willing to put in mucho time and kiss the canvas often in order to learn how to win. Prize Fighter is for contenders, not pretenders. (Sega of America, 800-872-7342; Sega CD, $59.99)

GAME-WINNING TIPS

Every fighter is susceptible to certain punches. "Customize" your fists by loading up your most effective hand with Power Points.

Bobbing left or right can sometimes be part of an effective survival strategy whenever you're hurt.

Sometimes the best strategy is to take a knockdown. The standing count always partially repairs damage.

1	2	3	4	5	6	7	8	9	10

Game controls are slow, and the visuals don't have muscle, but the game is realistic and brutal anyway.

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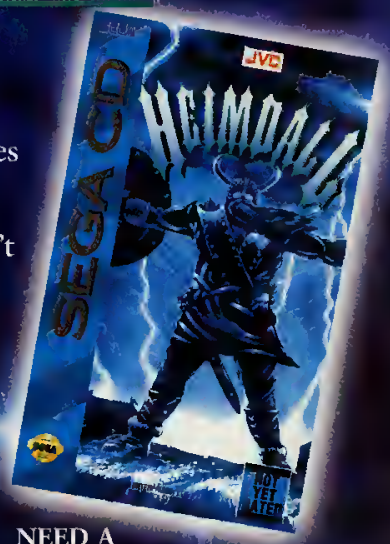

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By Christopher Lindquist

Multimedia for the Masses

Yes, you can get a great multimedia computer for around $2,500

When you spend thousands of bucks on a new computer, you expect more than boring old number crunching. You want multimedia excitement. You need power. And now you can get it all—computer speed, CD-ROM, video, even stereo sound—for $2,500 or less.

Unfortunately, there are hundreds of so-called "multimedia PCs" on the market, and finding the right system for the multimedia titles and games you play is tougher than ever. So to help, we here at *E2* tracked down ten great systems that'll offer the price, performance, reliability, and just plain multimedia potential you'll need to run today's hottest titles. Any one of them will let you join the action without breaking your bank.

PHOTO ILLUSTRATION BY JOHN LUND

Making our list wasn't easy. To be included, each system had to meet or exceed these specs: a 486SX processor, 4MB RAM, a 160MB hard disk, a double-speed CD-ROM drive, a 16-bit sound card, a multisynching monitor, Super VGA graphics circuitry, speakers, and copies of DOS and Microsoft Windows 3.1 preloaded.

And not only did they have to have all the hardware necessary to meet the Multimedia PC Marketing Council's MPC II standard (minus some of the arcane technical specs), but they also had to keep up with our real-world tests. On each system we ran a tough bunch of multimedia titles and games to test compatibility and screen graphics performance. We ran The 7th Guest to gauge high-resolution animation, for example, and Microsoft Cinemania to test how fast each system could access data on the disk.

We let our systems rip through this unique entertainment-oriented obstacle course. Admittedly, we ran some benchmarks to compare things like video and processor speed, but if a system didn't sound good or was a hassle to set up, it didn't matter how many pixels it could pump or bits it could burn. We hunted for systems that you could put together without a computer science degree, and machines that made today's most sophisticated multimedia titles look and sound great.

We also liked systems that ship with a bunch of free software titles. Nobody lost points for not carrying bundles, but beginners who need a nudge in the right direction should give the bundled systems extra credit. More experienced users who already own a collection of multimedia titles may be better off spending their money on performance enhancers like memory upgrades or better speakers.

After the dust settled, we decided on ten top systems—nine PCs and, for variety's sake, a multimedia Mac. Any one of these machines has what it takes to satisfy your multimedia cravings.

All Kinds of Ways to Win

ONE MAN'S DREAM MACHINE might be another's boat anchor, so we divided our top picks into categories to help you make the right choice. Looking for a software bundle or a bare-bones system? Want top price/performance? We have a winner in each category, but the rest of these computers have plenty to offer, too.

Best Bundle: Insight's VL 486DX-66MM simply overwhelmed the competition with better-than-average speakers, a bigger-than-average screen, and a software bundle that included some 30 titles, covering everything from office productivity to games. The only negatives were some minor compatibility problems running Windows software.

Best Stand-Alone: Netis's 466VL MPC is one potent multimedia machine. The system topped everyone in performance tests, in part due to a caching drive controller that lent extra zip to disk-intensive titles. The 25-watt, amplified speakers with their own power cord played back sound from a Media Vision Pro Audio Spectrum 16 sound card with clarity and power. Netis also won points for such niceties as printing the company's technical support number directly on the case.

Best Price/Performance: Acer's Acros A4571G is a gem of a deal. Acer filled a clever "screwless-entry" case with good-quality components, added a useful Microsoft-based software bundle, topped it with a crystal-clear 15-inch monitor, and wrapped it all up in a price of just over $2,000. We just felt good using the Acros. When it comes to bang for the buck, the Acros has what it takes.

Acer Acros A4571G

As the Acer ACROS demonstrates so well, good engineering is cool. The ACROS's space-saving, blue-and-gray slimline case snaps apart without screws to allow easy access to all the internal components—including an Intel 486DX2/50 processor.

Sound comes from a Creative Labs Sound Blaster 16 sound card connected to the system's weakest link: a pair of tinny, unamplified speakers that should be replaced immediately if you have any respect for your ears. But the final link in the Acros's motherboard-mounted, local-bus video chain, a 15-inch AcerView 56L, is a lot more impressive. The ultra-flat screen displayed nch colors and crisp graphics that looked good even at high resolutions.

The Acros isn't an island, either. Acer supplies a 9,600-bps fax/modem and throws in America Online, Prodigy, and fax software to make it useful. The package is a great way to introduce computer novices to online computing.

Acer tops everything off with a software bundle that includes Microsoft Works, Encarta, Cinemania, and Golf, and even Intuit's Quicken so you can figure out how much money you owe the IRS. If something goes wrong, don't worry: Acer includes a year of on-site service in its warranty. And you get everything for a minuscule $1,999 street price.

Talk about bang for the buck! Acros gets you performance and a great software bundle for under $2,000.

If there's a downside to this system, it's that the Acros's slim case limits it to three 16-bit expansion slots. That'll keep the power-hungry hardware buyer from adding the next new local-bus disk controller or graphics card. A boost from 4MB to 8MB of RAM would be a good move, too. But for the money, you'll be hard pressed to beat the Acer Acros A4571G. (Acer America; 800-368-2237; $1,999)

PHOTOGRAPHS BY DAN CLARK

TIP #1
PRACTICE SAFE COMPUTING

Get a virus-protection package and use it. Just because that PC is brand-new doesn't mean it's immune to infection. Any system with MS-DOS 6.0 or later has virus-protection software called VSAFE. But for more protection, buy a complete virus prevention and detection kit such as Symantec's Norton Antivirus or McAfee's shareware SCAN and download the regular upgrades to make sure you're always shielded from a potentially devastating infection.

Advanced Logic Research Flyer VL 4/33S

The Flyer VL is a green machine. The 486SX/33 system sports a low-radiation monitor and supports MS-DOS 6.2's power-management capabilities, so the Flyer uses less electricity when it's sitting idle.

A Media Vision Pro Audio Spectrum 16 sound card pumped notes to Labtec CS-550 speakers that included an AC adapter. The CS-550s seem to be the favored speaker of multimedia system vendors these days, and while they're mediocre at best, the addition of a power supply is a nice touch. The Flyer also has a 32-bit VESA local-bus slot available to add a high-speed disk controller or video card later.

The Flyer VL is environmentally friendly, and it includes one of the best warranty packages in the business.

Unfortunately, the Flyer was grounded by a couple minor flaws. ALR hadn't installed the system's high-resolution video drivers at the factory, a problem we hope you won't have to contend with. Even worse, once the drivers for the motherboard-mounted VESA local-bus Western Digital video were installed, they didn't work. Windows fonts appeared too large at 640-by-480 resolution, forcing sections of windows off the screen and making some applications nearly impossible to use. On the hardware side, the reset button on the front of the case refused to work, doing further damage to the Flyer's rating.

Still, ALR backs these systems up with a decent warranty package. The standard warranty covers parts for 5 years and labor for 15 months, and you can buy one year of onsite support for less than $10. And ALR provides several ways to get help, including a toll-free support line, a CompuServe forum, a faxback line, and a 24-hour electronic bulletin board. (Advanced Logic Research; 800-444-4257; $2,200)

AST Research Advantage Adventure Multimedia

Not only is AST Research's Advantage Adventure Multimedia system the cheapest of the pack at under $1,800, it's also the easiest to set up and use. The first thing you see when you open the Advantage's box is a poster-size installation card that shows you how to build your system in a clear, step-by-step manner. Any vendor who claims to be targeting consumers should take a hint from AST.

Unfortunately, our initial euphoria didn't last. The value-priced 486SX/33 system was slower than many of the competitors, so video in such titles as Virgin's 7th Guest, Media Vision's Critical Path, and Medio's J.F.K Assassination was noticeably jerky. Sound reproduction

AST's Advantage Adventure Multimedia is a consumer's dream—cheap and incredibly easy to set up.

was also poor, even though the system uses a Creative Labs Sound Blaster 16 card. And because AST cut corners and used Labtec's cheap CS-150 speakers, the crackly, thin audio didn't do justice to the words *multimedia audio*.

The Advantage did win some points for including a fax/modem, but it lost them again with a relatively weak bundle of Microsoft Encarta and Works, Prodigy, America Online, Delrina WinFax, a Kodak Photo CD sampler, and Where in the World Is Carmen Sandiego? It's a thorough package, but it definitely falls a bit short in terms of multimedia entertainment.

Despite having the lowest list price in this roundup, the Advantage won't leave you in the lurch when it comes to support. The standard one-year warranty includes on-site service and a 24-hour, toll-free technical support line. (AST Research; 800-876-4278; $1,799)

TIP #2

MORE MEMORY

The rule of thumb for memory is "more is better." Many multimedia systems come standard with 4MB of memory. That's usually adequate, but upgrade to 8MB if you can afford it. Memory upgrades are usually cheaper if you do them at the time you buy the system. The extra RAM will help your system perform better now by giving your programs more room to store their data, and you'll be ready to go when the next generation of even more memory-hungry titles hits the shelves.

Dell Dimension 433/V

If you don't mind paying a premium for brand name quality, Dell has the multimedia system for you. The 486DX/33-based Dimension 433/V is a great buy for the experienced computer user who's interested in setting up a sophisticated multimedia system. Consumers new to the computer world, however, may be a bit daunted.

The Dimension 433/V won kudos for fast VESA local-bus video, a substantial 8MB of RAM, a large 340MB hard drive, two open VESA local-bus slots, a Creative Labs Sound Blaster 16 sound card, and good-quality amplified speakers from noted musical instrument maker Peavey.

It slipped in ease of setup by lacking labels critical to helping novices figure out what cables plug into what sockets. The system also showed a surprising lack of pep in terms of CD-ROM access times, recording slow retrieval times in our Cinemania "Find the Movies" test.

Despite the drawbacks, it's easy to be confident about Dell. The company won JD Power's 1993 Desktop Computer Satisfaction Study and has a reputation for treating customers right. Another Dell system also won *E2*'s First Electronic Entertainment Award for the year's best multimedia platform. (Dell Computer; 800-289-3355; $2,499)

PC veterans will love Dell's Dimension 433/V. It's got all the right bells and whistles.

Eltech Splendor II

The Splendor II's matte-black minitower case takes aesthetic appeal to the limit—it'll draw oohs and ahhs before you even turn it on. But while this beast's beauty is more than skin deep, it's not quite ready for the runway.

The system's monolithic exterior houses an IBM SLC2/66 processor, a double-speed Toshiba CD-ROM drive, 8MB of RAM, a 240MB Conner hard drive, and a fast VESA local-bus video card. The Splendor II also includes black speakers, a black keyboard, a black joystick, and a 14-inch monitor—also black.

Manufactured by Eltech but distributed by Solmicro, the system's display was one of the best we tested, with crisp graphics and rich colors. We did encounter a problem with the system's Windows drivers that resulted in too-large fonts. It took 20 minutes to solve the problem, time you shouldn't have to spend. The Splendor II also suffered from occasional annoying keyboard lockups that we fixed by using a keyboard from another system.

Neither of these problems cost Eltech many points in our review, however. It's sound that cost the Splendor II the most. The system includes a high-quality Media Vision Pro Audio Studio sound card and then hobbles it with a pair of tiny, reedy, unamplified speakers. If you go for this system, we recommend you replace them immediately. If you don't, you'll get a system that sounds worse than most speakerphones. Eltech has a seriously cool system here that looks like Elvis, acts like Elvis, even struts like Elvis—and sings like Tiny Tim. (Solmicro; 510-656-5440; $2,199)

The best-looking system by a longshot, Eltech Splendor II's sleek black case houses some powerful components.

TIP #3
CACHE MEMORY

System RAM isn't the only memory your MPC uses. CD-ROM drives, hard-disk controller cards, and processors all can use caches to improve their performance. A cache is a piece of high-speed memory where data can be stored and retrieved more quickly than from a hard disk or system memory. If you've got a 486DX2 (as opposed to a DX or SX) CPU, make sure you get the maximum amount of cache available to optimize performance. CD-ROM drive caches range from none to 256K, while a caching disk controller could have 1MB or more of memory. Caches don't come cheap, so bargain systems tend to use small ones. But if everything else on two systems is equal, go for the one with more cache.

Insight VL 486DX2-66MM

It felt like Christmas the day we opened the box containing Insight's VL 486DX2-66MM Insight supplies a smorgasbord of multimedia goodies in a system that slips in at just $1 under $2,500.

The base system includes an Intel 486DX2/66 processor, an STB Horizon VL VESA local-bus video card pushing pixels to an oversize 15-inch CTX 1561LR monitor, a 340MB Maxtor hard drive, a Sound Blaster-compatible Reveal SoundFX 16-bit sound card, 25-watt speakers with bass and treble controls and an AC adapter, 8MB of RAM, and a Panasonic double-speed CD-ROM drive.

It's a dream machine: Insight's $2,499 system comes with everything but the kitchen sink.

As if that weren't enough, Insight piles on a joystick, a headset with a microphone, and more than two dozen CD-ROM titles. The software isn't all from the Dark Ages either. You'll find Lord of the Rings, Stellar 7, King's Ouest VI, Chessmaster 3000, Microsoft Works, and Jurassic Park, just to name a few.

You pay a price for getting everything but the kitchen sink, however. The Insight ran into a couple of compatibility problems under Windows, most notably with Aris's MPC Wizard and Media Vision's Critical Path. The 7th Guest also had a problem properly identifying the SoundFX card as Sound Blaster compatible, but a configuration change resolved the issue.

Support is good, but it isn't on the same level as some of the bigger players. You get the standard one-year warranty and a toll-free number, but don't expect on-site support. (Insight Direct; 800-755-9664; $2,499)

National MicroComputer's NMC Pro System

One of the best small-company systems we found is National's NMC Pro System, a 486DX2-50 multimedia PC. The Pro burned up the performance tests, and only a relatively weak software bundle and poor sound quality kept it from being our price/performance winner.

The Pro didn't spare the horses. Its 8MB of RAM, 340MB Western Digital Caviar hard drive, and STB video card with a full 2MB of memory powered the system through our par course. Unfortunately, however, like so many systems we reviewed, the Pro turned sweet music into sour notes by relying on a pair of Labtec CS-150 speakers.

The system also suffered from performance problems with the video in Critical Path. Segments of video became increasingly more jerky and out of sync as the game progressed. Audio in The 7th Guest was also intermittently weak. Neither problem rendered the NMC Pro System unusable, but multimedia should be anything but annoying.

The Pro's software bundle was also less than exciting, more closely resembling a trip to the library than to the arcade. Grolier's Encyclopedia, The Animals from The Software Toolworks, U.S. and world atlases, and Chessmaster 3000 formed an academic cavalcade of titles. But even if the Pro makes multimedia feel a little bit like going back to school, at least it's near the top of its class. (National MicroComputers; 800-424-2983; $2,399)

National's NMC Pro System is a screamer—but its academic software bundle may put you to sleep.

TIP #4
MANAGE YOUR MEMORY

Your system will also run faster if you add a memory manager such as Quarterdeck's QEMM or use the MemMaker function built into MS-DOS 6.0. A memory manager gives your titles more room to stretch out by moving small programs such as CD-ROM and mouse drivers into "high" memory, the space between 640K and 1MB that DOS programs can't use. Most of the systems we tested had not had any memory management performed, but a quick session with MemMaker usually resulted in at least a couple dozen more kilobytes of space in the lower "conventional" memory for your programs play with.

Netis N466VL MPC

Netis skips software bundles entirely and instead supplies a top-notch system that will happily run anything you throw at it.

The N466VL contains high-quality components throughout, starting with an Intel 486DX2-66 processor. You also get 8MB of RAM, a 270MB Quantum hard drive, a Toshiba 3401 double-speed CD-ROM drive, a Genoa VESA local-bus graphics card with 1MB of memory, and a Media Vision Pro Audio Spectrum 16-bit sound card.

Netis then adds performance extras such as a caching drive controller with 2MB of memory to help with disk-intensive chores, 256K of processor cache for extra zip, three free VESA local-bus slots, 25-watt

One of the fastest systems in the group, Netis's N466VL makes up for its lack of a software bundle in sheer performance.

powered speakers that don't need batteries, a Microsoft mouse, and a fan that sits on top of the Intel CPU to make this hot machine a little cooler.

The result is a workhorse that finished at or near the top in every performance category without so much as a hiccup in compatibility. If you want a lot of hand holding from support, the Netis may not be for you. The warranty is a standard one-year deal, and you'll have to pay for the support calls. (Netis Technology; 800-577-7526; $2,329)

Zeos Ambra

Sometimes a company's reach exceeds its grasp, and while the Zeos Ambra is a solid system, it still has a few things to learn.

The biggest issue for first-time PC buyers will be poor labeling and the lack of a easy-to-use installation chart. Attaching the Zeos's keyboard required attaching an adapter that we couldn't find mentioned in the documentation—a classic violation of Consumer Marketing Law No. 1, assume your buyer doesn't know *anything* about your product.

If you can stand the noise from its rackety CD-ROM drive, you'll like the Ambra's solid performance

Based on an Intel 486DX-33 chip, the Ambra starts out with a firm hardware foundation, including 8MB of RAM, a 340MB Western Digital hard drive, Cirrus Logic VESA Local-bus video, and a Cardinal 16-bit Sound Pro 16 sound card. The only soft spot in the hardware is an incredibly noisy double-speed Mitsumi CD-ROM drive. While the racket didn't seem to affect performance, it was an unwelcome intrusion in a system that depends as much on sound as sight.

Your sight wouldn't be offended by the Ambra's 14-inch monitor as it displays pixels pumped by the motherboard-mounted Cirrus video with 512K of memory. There is a small nit to pick: The Cirrus drivers didn't support 64,000 colors under Windows, so high-res graphics were a little fuzzier than we like to see. (Zeos International; 800-423-5891; $1,994)

TIP #5
UPGRADE YOUR SPEAKERS

Loudspeakers seem to be the spot where multimedia vendors try to save a buck. Most of the speakers we listened to cost the manufacturers $5 or less and made everything sound like a fast-food drive-through. To make things worse, batteries and AC-adapters are almost never included for the powered speakers. If possible, connect your sound card to your home stereo or spend an extra $50 and buy something listenable. Acoustic Research and Altec-Lansing both make a variety of decent-sounding speakers that won't empty your wallet. At the very least spring for $10 to buy an AC adapter. Not every MPC maker is so cheap on the sonics, however. Dell, Insight, and Netis get kudos for realizing that ears have feelings, too.

Apple Computer Quadra 660AV

If you think a multimedia system means an IBM-compatible PC, check out Apple's Quadra 660AV.

This 68040-powered Mac is one of Apple's first systems to include an onboard digital signal processor that adds more oomph to speech, audio, and telecommunications functions by letting the system's main processor concentrate on the important stuff, like running your applications. While the best game some Macs play is click-and-wait, wait, wait, the 660AV is always there for you, powering its way through the latest Mac multimedia titles. Like all Macs, the 660AV is easy to set up. Just match icons on the cables to their counterparts on the system and you're ready to go. System 7 is already installed. This is a bare-bones system, though, so you'll have to supply the titles.

Even without an inviting bundle, the 660AV is a social machine with built-in Ethernet and AppleTalk networking support as well as a connection for a GeoPort adapter (an integrated fax/modem). When you're ready for online gaming, this Mac is waiting for you.

The 660AV isn't a bank-breaker either. The base system with a 230MB hard drive (but without keyboard and monitor) can be found for about $2,500. Our test unit pulled out the stops with Apple's extended keyboard and a $700 AudioVision 14-inch display with integrated stereo speakers, but you could get by with the basic keyboard and a cheaper monitor to bring the complete system well under $3,000. That's a bit more than you'd pay for the IBM-compatible machines we tested, but at least you won't have to worry about setup and compatibility problems. (Apple Computer; 800-538-9696, $2579 without monitor)

If you're looking for a multimedia Mac, look no further than the 660 AV. It'll power you through the most demanding Mac titles.

By Christopher Lindquist

Chatting Up Your PC

"Computer, scan my e-mail."

"Checking E-mail. You have three new messages. The senders are Gina Smith, Bill Gates, and Acme Marketing."

"Okay, read me Gina's mail, file the one from Gates in the 'To Be Read Much Later' folder, and delete the note from Acme with extreme prejudice."

"Reading mail from Gina Smith, subject: Your future."

"Uh-oh."

"Chris, we need the speech-recognition piece now! Where the h... "

"Cancel reading! Start word processor. Open new line file called jobsaver.txt. Starting dictation..."

Sound like science fiction? It isn't. Affordable speech recognition is finally reaching maturity, and the result is the most exciting innovation in computer interaction since the introduction of FM-synthesized sound.

It's easy to see why speech recognition is so exciting. When people want to communicate in the simplest way possible, they talk. Typing is adequate for those who can type, and pen input may be fine for anyone who got A's in handwriting class, but talking is natural for everyone.

For more than three decades, scientists have been trying to build machines that could listen to, understand, and act upon voice commands. But what was once thought to be a fairly straightforward problem turned into an intricate web of acoustical and electrical engineering, computer programming, probability theory, and physiology. The CIA even sponsored some ground-breaking work in the area, but only in the past couple of years has reliable, affordable voice recognition become possible.

These days, nearly every sound card on the market lists speech recognition of some sort on the box. Plus, a flood of stand-alone speech-recognition products are hitting the streets from companies such as Covox, Dragon Systems, Verbex, and IBM, each with its own set of promises—and problems.

But if you're imagining Star Trek when you think of speech recognition, be careful. While the technology is improving by leaps and bounds, even the best systems have limitations. And finding out what those limitations are means hacking your way through a jungle of jargon. Use the following glossary to help you find your way.

Vocabulary: Today's recognition systems compare spoken commands to a "vocabulary," or master list, of available words. The vocabulary can range in size from fewer than a dozen words to 30,000 or more in advanced systems. Of course, a bigger vocabulary results in longer searches—and a greater potential for error.

Substitution error: This occurs when you say one word, but the computer recognizes it as another. While "thirty" and "thirteen" may not sound similar to you or me, to a computer they're nearly identical. The speech-recognition system's ability to distinguish between like words is critical to maintaining high accuracy.

Speaker dependent vs. speaker independent: Speech-recognition developers can choose to key their systems to a specific user or open it up to any user. A speaker-dependent system, such as the Voice Blaster from Covox, is trained to recognize a specific user's voice. Users either speak all the available commands or read text that contains all the basic parts of speech (phonemes) from which the other words can be

The computer converts the player's command into a digital format and looks for matches in its "vocabulary." Once a match is made, the command is executed.

ILLUSTRATION BY MARY CARTER

created. One big advantage to systems where the user reads the entire vocabulary is that they can use any language, which means that it can be used as a translation system. (When you say "oui" when asked to train the word "yes," the computer will treat "oui" as "yes.") The same principle would apply for people with serious speech impediments. In addition, when the entire vocabulary must be trained, there won't be be any "hidden" words because the user reads all the available commands. Such systems tend to be more accurate than speaker-independent versions, but they are unacceptable in places where many people need access, such as kiosks.

Speaker-independent systems, like those in IBM's Continuous Speech series (the technology behind Compton's voice-operated titles), are less accurate, but they allow anyone to use a system at any time, without training.

Golden voice: Developers create speaker-independent systems by having many people (IBM used hundreds) read a training script. Those scripts are then combined into a "golden voice," a composite vocal image that takes into account the myriad ways in which people say the same thing. Systems users' voices are then compared to this composite.

Noise tolerance: Noise tolerance is a big issue for consumer speech-recognition products. A speech-recognition system must be able to distinguish between true commands and background speech, music, laughter, or any other audio haze that's circulating. Today's systems are improving rapidly in their ability to ignore surrounding noise, but a headset that places the microphone near your mouth is always a good idea.

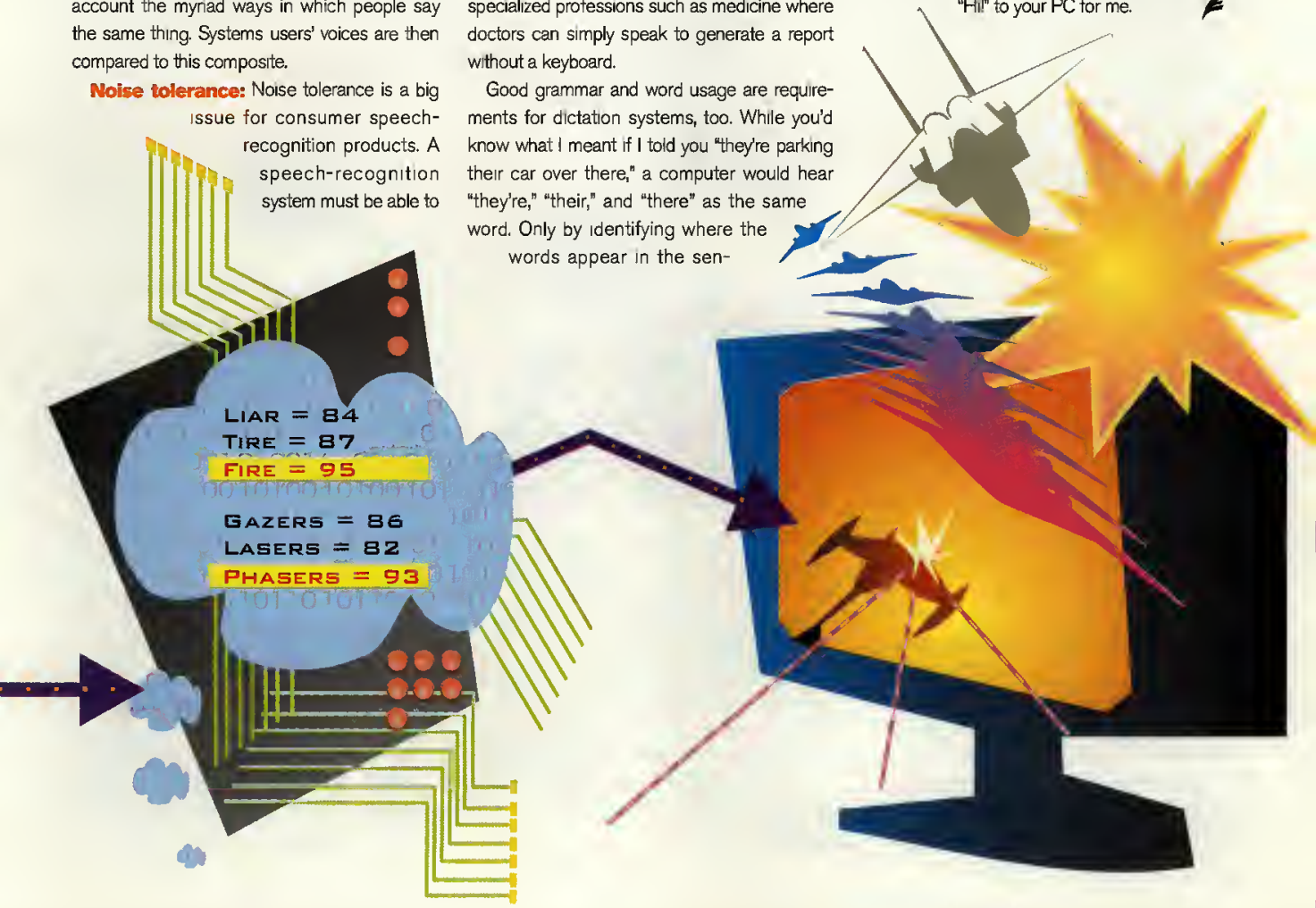
Continous vs. discontinuous speech: When people talk, the end of one word can be slurred into the beginning of the next without much concern that the listener won't be able to understand you. In speech-recognition terms, this is known as "continous" or "connected" speech, and it makes life rough for a computer. If the system can't identify where one word ends and another begins, it has to start guessing, and that not only slows a system down but can introduce errors. To avoid this problem, some speech recognition systems require you to "disconnect" your speech by inserting a slight pause between words.

Dictation (background and visual): Dictation is exactly what it sounds like: The computer listens to every word and then "types" it. Expensive dictation systems are used today in specialized professions such as medicine where doctors can simply speak to generate a report without a keyboard.

Good grammar and word usage are requirements for dictation systems, too. While you'd know what I meant if I told you "they're parking their car over there," a computer would hear "they're," "their," and "there" as the same word. Only by identifying where the words appear in the sentence could the computer tell what the proper spelling must be.

Voice macros or navigation: This is the most common form of speech recognition, with products available from many companies, including Verbex, and Dragon Systems. You say a word or phrase, and the computer compares it to a "vocabulary." The computer then performs whatever action you've assigned to the command. Voice macro recognition can be fast and accurate because developers can set up small vocabularies for different places in a program, eliminating any words that don't apply to what the user is doing. For example, there may be little reason to have the computer waste time searching for "set phasers to stun" when the character is sitting on the bridge.

The hoopla surrounding speech recognition is only going to get louder as the makers of even more games, multimedia titles, sound cards, and systems (including the set-top box crowd) join the fray. Just make sure you know what you're buying before you spend (for some help there, see our roundup of speech-recognition products in next month's issue). And say "Hi!" to your PC for me.



TechShop S.O.S.

Navigate the Internet, lick herky-jerky video, identify PC connections

Stalled on the Internet

Many people have told me how fun it is to "cruise the 'net" (the Internet, that is), but even though I've set up an account at a local access provider I'm still stuck in first gear. For starters, the foolish thing requires me to know UNIX! What confusion. How am I supposed to find anything?

Michael Zabriski
Stanton, Delaware

It appears that you at least know how to log on to the system you're using to get Internet access, so that's a first step, a very small one, but a step nonetheless.

The first thing you should do once you're logged on is type "faq internet." Faq is an acronym for Frequently Asked Questions, and the command was designed to keep users out of the way of overworked experts. You should get a list of available faq numbers with information about using the Internet.

If the faq command doesn't come up with anything for some strange reason (such as the sysop hates beginners), try getting a book about Internet access. One of my favorites is *The Internet Roadmap,* by Bennet Falk. You're sure to find others in the computer section of any good-sized bookstore.

As for the Unix commands, the better books about the Internet should include a section on the basic commands you'll need. If a book doesn't have those commands, it isn't for beginners and you should look for another guide. Self-help Unix guides are also available, but most are aimed at tech-heads and are more than you'll ever need for Internet travel.

The Missing MPEG Link?

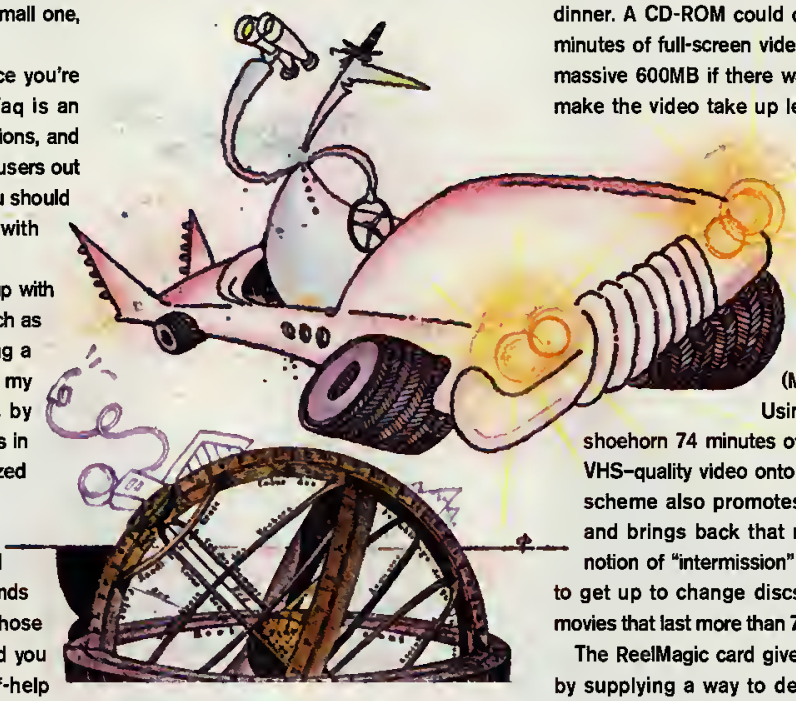
I read an article in your first issue about MPEG graphics and animation. I have a Cirrus Logic local-bus video card that meets—if not exceeds—all MPEG specifications. Why can't I use MPEG graphics with my video card?

Nicholas Adair
Anchorage, Alaska

Unfortunately, your Cirrus Logic card is a couple aces short of the full deck it needs to play back MPEG video. You're missing the most important piece in the MPEG chain—an MPEG decoder.

Compressing and decompressing video using MPEG is a very power-intensive process. As a result, the only way to currently get good MPEG playback on anything less than a Pentium system is to use a separate card that contains an MPEG decoder chip. But no one's giving away decoder chips in cereal boxes.

Video-card makers can put these decoder chips either on a full-function video/MPEG card or on a separate add-on card such as the one from ReelMagic. The ReelMagic card attaches to a video card and supplies it with the pieces it needs to display MPEG video.



In the relatively near future there will be software-only MPEG decompression that will allow you to get by without the decoder chip. Unfortunately, software decompression requires some real computing muscle. So your sub-Pentium box isn't likely to be up to the job.

Smoothing Shaky Video

The ReelMagic audio/video card from Sigma Designs claims to eliminate herky-jerky video from CD-ROM animation. Would a triple-speed drive have the same effect?

Seth Hart
Longview, Washington

While your comparison may seem logical, you're really comparing apples and aardvarks. ReelMagic and CD-ROM drives affect video in different ways.

Video eats storage for breakfast, lunch, and dinner. A CD-ROM could contain only a few minutes of full-screen video on its seemingly massive 600MB if there wasn't some way to make the video take up less space. Luckily, there are methods to compress video to a reasonable size. One such technique is Moving Pictures Experts Group (MPEG) standard. Using MPEG, you can shoehorn 74 minutes of full-screen, Super VHS–quality video onto a single disc. This scheme also promotes healthy exercise and brings back that nostalgic old-time notion of "intermission" because you have to get up to change discs halfway through movies that last more than 74 minutes.

The ReelMagic card gives you better video by supplying a way to decode MPEG-compressed video files. It doesn't even require a fast CD-ROM drive to do it—older single-speed drives work just fine. Unfortunately, the ReelMagic card doesn't help you a lick with video that isn't compressed using MPEG, and currently, that means most of it.

On the other hand, while a triple-speed CD-ROM drive might make *all* your video play a little more smoothly (especially if you're currently stuck with a single-speed geezer), the most important factor in how your video looks is how good the original video was and what com-

ILLUSTRATION BY DAVID POVILAITIS

pression scheme the developer used. If the video was poor or the compression scheme crummy, your investment will bring you nothing more than smooth bad video.

Connection Chaos

How can I identify whether my CD-ROM drive supports SCSI, IDE, or some proprietary connection without taking apart my computer? I need to find out because I want to buy a new sound card.

Bud Hrsch
Santa Cruz, California

I'm assuming you've lost the manuals to both your CD-ROM drive and the sound card or you wouldn't be asking me this. If you really can't find the manuals, there are ways to tell what type of connector your drive uses.

First of all, boot up your system and watch for the text saying that the CD-ROM device driver is loading to appear. (You can hit the pause key if it goes by too fast.) It should give you the manufacturer's name.

If that doesn't work for some reason, look for the manufacturer's name on the drive. Sony, Matsushita (Panasonic), and Mitsumi drives require a proprietary controller 99 percent of the time. If your drive was made by one of those companies, make sure the sound card you're thinking of buying supports it. Some cards, including the Creative Labs Sound Blaster 16 MultiCD and Reveal's SoundFX, support the most common drives from all three.

If the drive says NEC, Texcel, Toshiba, or Chinon, it's probably a SCSI drive. (The drive may say SCSI on it somewhere, too.) If that's the case, you'll need a sound card that supports SCSI, such as Creative's Sound Blaster 16 SCSI.

If the drive doesn't have the manufacturer's name on it, look at the sound card itself. It may have the name of the drive it supports written near the CD-ROM drive cable connector. If that fails, look for chips labeled "Adaptec" or "Future Domain" somewhere on the board. That's a tip-off that it's SCSI.

Finally, if nothing else works, try to find a phone number for the sound card manufacturer (look it up in an ad or something), give them a call, and ask them what CD-ROM interface their card supports.

When you shop for a new sound card, don't feel like you have to limit yourself only to those that support your drive, either. You can usually buy separate CD-ROM interface cards that will let you use any sound card you choose.

And next time, put your manuals in a safe place, okay?

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In the Works at E²

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A Multimedia Exhibition

More than just a development tool for entertainment, interactive technology offers artists creative possibilities beyond their wildest dreams. *E2* tells you how artists are using multimedia to create the next kinetic exhibit at the Met.

Full-motion Video

Find out how full-motion, full-screen video is going to change the games you play and the movies you watch. Get to know your options, what they'll cost, and the quality of software titles that you can buy.

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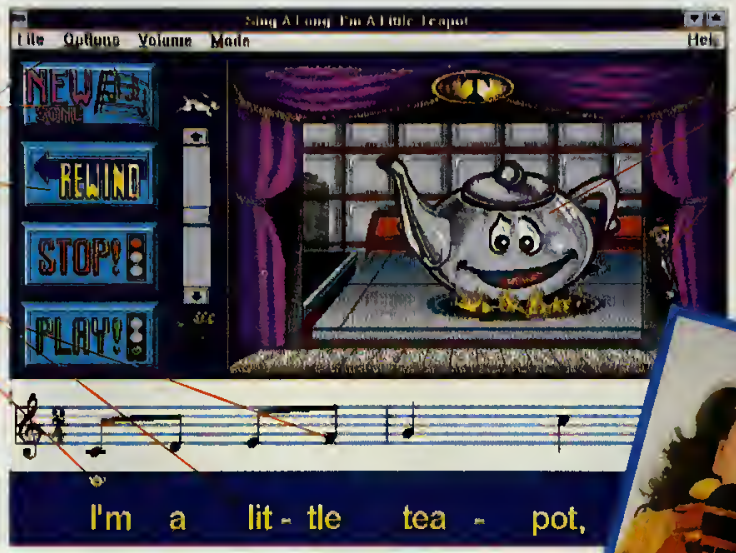

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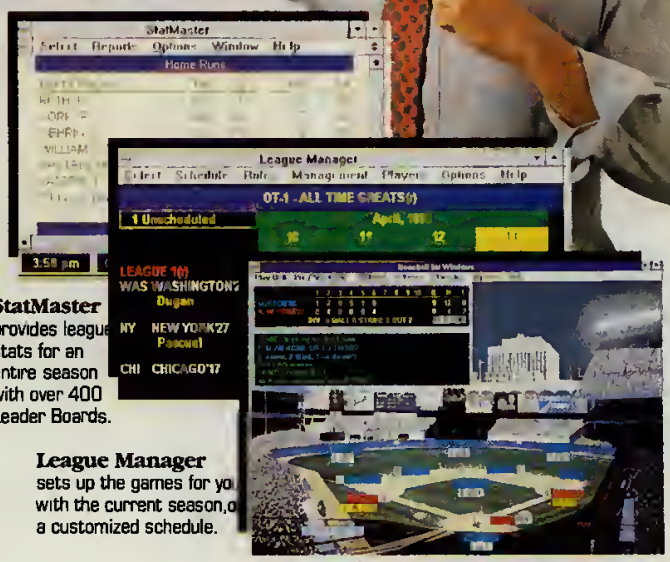

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Nolan K. Bushnell

Digital Days of Our Lives

It isn't as big or complex as the Internet, of course, but there's something incredibly intriguing about the ImagiNation Network. Especially if, like me, you're always thinking about the future of telecommunications and what sorts of new ways of meeting people it will bring.

Partly owned by AT&T—the "reach out and touch someone," people—INN isn't just an online service. It's a place. A community, even. You start by creating a "toon" of yourself, a simple but colorful drawing that lets you choose your own clothing and facial features and list your likes and dislikes. The opening screen—actually a map representing the various sections or "lands" available in INN—lets you congregate with other people, find someone who likes to play the same games you do, or just plain chat. (For more on INN and online services in general, see "Calling All Games," in our February issue.)

About the third time you log on, a feeling of community begins to take hold. You start running into people you have previously met and played with—they say "hello" and talk about previous experiences you've shared together—just like old friends. You begin to realize that you know people, and that they know you. (You'll have a hard time finding me, though, since I use a "handle" instead of my real name.)

And this isn't just kid's stuff! On the contrary, there is clearly an adult-level soap-opera opportunity here. I know a woman who left her husband for a man she met—sight unseen—on INN. I have held discussions on politics, history, the future of computing, and even physics with people I've met here. One night, I played in a hearts game with a coed from Knoxville, a lady bartender from Atlanta, and some guy from Washington who typed some of the most sexually suggestive stuff I've ever read. And mind you, this wasn't even in LarryLand, the no-holds-barred adult language and content area where they have a virtual "hot tub"—clothing optional.

Cybersex stuff aside, you should realize there is something important going on. Something that helps us very clearly project what's in store for the future. Given what's going on in the INN and other similar networks—where typing works as a direct substitute for talking—I think the advent of the "talking BBS" is inevitable. In fact, there's even a clear consumer need for speech-capable electronic bulletin board services (BBS).

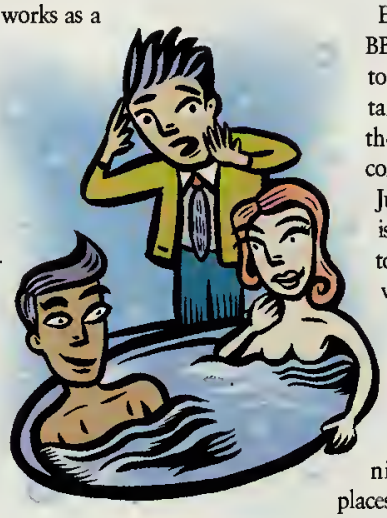

ILLUSTRATION BY PAMELA HOBBS

For instance, as I type on the INN, I would prefer not to have my spelling showing. Also, my grammar—and anyone's grammar, for that matter—seems a lot worse in print than it is when I'm just talking. But if you add speech recognition and networking to the equation, all those problems simply melt away. Instead of sending what they call "packets" of text across the phone lines, INN would send packets of speech.

Isn't this just a glorified telephone conference call? Well, yes and no. The main difference between a regular conference call and a talking BBS would be that we members get to control exactly when we want to listen to the messages people leave us and how long we want to listen to them. And just like with INN and other BBSs, you could also very selectively tune into topic centers and discussions that interest you. (Until the FCC steps in, I bet that guy from Washington will have a field day!)

And talk about the ultimate talk radio medium! You could call in, disguise your voice if you like, even edit it with different accents and emphases. You could sound older or younger. And if imaging technology keeps improving, you could also—instead of INN's toon—have a complete, animated photographic image to represent you.

Eventually, the talk radio BBS could be all motion video, too. And it's not the ultimate talk radio BBS anymore, but the ultimate talk radio BBS-combination-video conference. Just think about it. More realistic voice and images added to the standard online service will give us a safe but incredibly fun and exciting way to meet with hundreds—even thousands—of people.

And when you think about it, these new communities may be even better places to meet someone than the discos and dating bars everyone knows and hates. They might finally offer the chance to learn to appreciate the mind and the character of someone first without being distracted with immediate physical attributes. We all know of too many cases in which initial physical attraction leads to empty relationships. Turning the process around is at least worth a try.

Nolan K. Bushnell invented Pong, founded Atari, and created Chuck E. Cheese. He is currently chairman of Octus, in San Diego, California, the maker of PTA software. Write to him c/o Electronic Entertainment.

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